LUVIUM, INVINCIBLE CITY A. R. McKENZIE

SEE BACK COVER

AMAZING STORIES

SEPTEMBER 25c

WAR WORKER 17

BY

FRANK PATTON

Germs?
Flakes?
Itching?

Pityrosporum ovale, regarded by many leading authorities as a causative agent of infectious dandruff.

GET AFTER THE "BOTTLE BACILLUS" and INFECTIOUS DANDRUFF with LISTERINE ANTISEPTIC

Don't expect "over night" remedies to take care of the infectious type of dandruff.

When you have an infection, it should be treated as such . . . with antiseptic action. It's really impressive how frequently the combination of Listerine Antiseptic and massage brings improvement.

It's easy. It's simple. It's delightful. And you can apply it at home any time you want to.

Listerine Antiseptic kills millions of the stubborn "bottle bacillus" germs, held by many dermatologists to be a causative agent of infectious dandruff.

Almost at once those annoying flakes and scales begin to disappear. Itching is alleviated. Your scalp glows and tingles after the treatment and your hair feels delightfully fresh.

Remember, the Listerine Antiseptic treatment is the tested method. In one test 76% of the patients showed complete disappearance of, or marked improvement in, the symptoms of dandruff at the end of four weeks.

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The TREATMENT

WOMEN: Part the hair at various places, and apply Listerine Antiseptic.
MEN: Douse full strength Listerine Antiseptic on the scalp morning and night.

Always follow with vigorous and persistent massage. Listerine Antiseptic is the same germicide that has been famous for more than 60 years in the field of oral hygiene.

At the First Symptom—**LISTERINE ANTISEPTIC**

How to Make YOUR Body Bring You FAME ... Instead of SHAME!

ARE YOU Skinny? Weak? Flabby?

Will You Let Me Prove I Can Make You a New Man?

I KNOW what it means to have the kind of body that people pity! Of course, you wouldn't know it to look at me now, but I was once a skinny weakling who weighed only 97 lbs.! I was ashamed to strip for sports or undress for a swim. I was such a poor specimen of physical development that I was constantly self-conscious and embarrassed. And I felt only HALF-ALIVE.

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I don't care how old or young you are or how ashamed of your present physical condition you may be. If you can simply raise your arm and flex it I can add SOLID MUSCLE to your biceps — yes, on each arm — in double-quick time! Only 15 minutes a day — right in your own home — is all the time I ask of you! And there's no cost if I fail.

I can broaden your shoulders, strengthen your back, develop your whole muscular system INSIDE and OUTSIDE! I can add inches to your chest, give you a vise-like grip, make those legs of yours lithe and powerful. I can shoot new strength into your old backbone, exercise those inner organs, help you cram your body so full of pep, vigor and red-blooded vitality that you won't feel there's even "standing room" left for weakness and that lazy feeling! Before I get through with you I'll have your whole frame "measured" to a nice new, beautiful suit of muscle!

Only 15 Minutes A Day

No "ifs," "ands" or "maybes." Just tell me where you want handsome, powerful muscles. Are you fat and flabby? Or skinny and gawky? Are you short-winded, pepless? Do you hold back and let others walk off with the prettiest girls, best jobs, etc.? Then write for details about *"Dynamic Tension"* and learn how I can make you a healthy, confident, powerful HE-MAN.

"Dynamic Tension" is an entirely NATURAL method. Only 15 minutes of your spare time daily is enough to show amazing results—and it's actually fun. *"Dynamic Tension"* does the work.

"Dynamic Tension!" That's the ticket! The identical natural method that I myself developed to change my body from the scrawny, skinny-chested weakling I was at 17 to my present super-man physique! Thousands of other fellows are becoming marvelous physical specimens—my way. I give you no gadgets or contraptions to fool with. When you have learned to develop your strength through *"Dynamic Tension,"* you can laugh at *artificial* muscle-makers. You simply utilize the DORMANT muscle-power in your own body—watch it increase and multiply into real, solid LIVE MUSCLE.

My method—*"Dynamic Tension"*—will turn the trick for you. No theory—every exercise is practical. And, man, so easy! Spend only 15 minutes a day in your own home. From the very start you'll be using my method of *"Dynamic Tension"* almost unconsciously every minute of the day—walking, bending over, etc. — to BUILD MUSCLE and VITALITY.

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Charles Atlas

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REG. U. S. PAT. OFF.

SEPTEMBER 1943

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Front cover painting by Robert Gibson Jones featuring Women War Workers and illustrating "War Worker 17." Back cover painting by James B. Settles depicting the "Ship Of Jupiter." Illustrations by Julian; Robert Fuqua; H. W. McCauley; J. Allen St. John; Malcolm Smith; Joe Sewell

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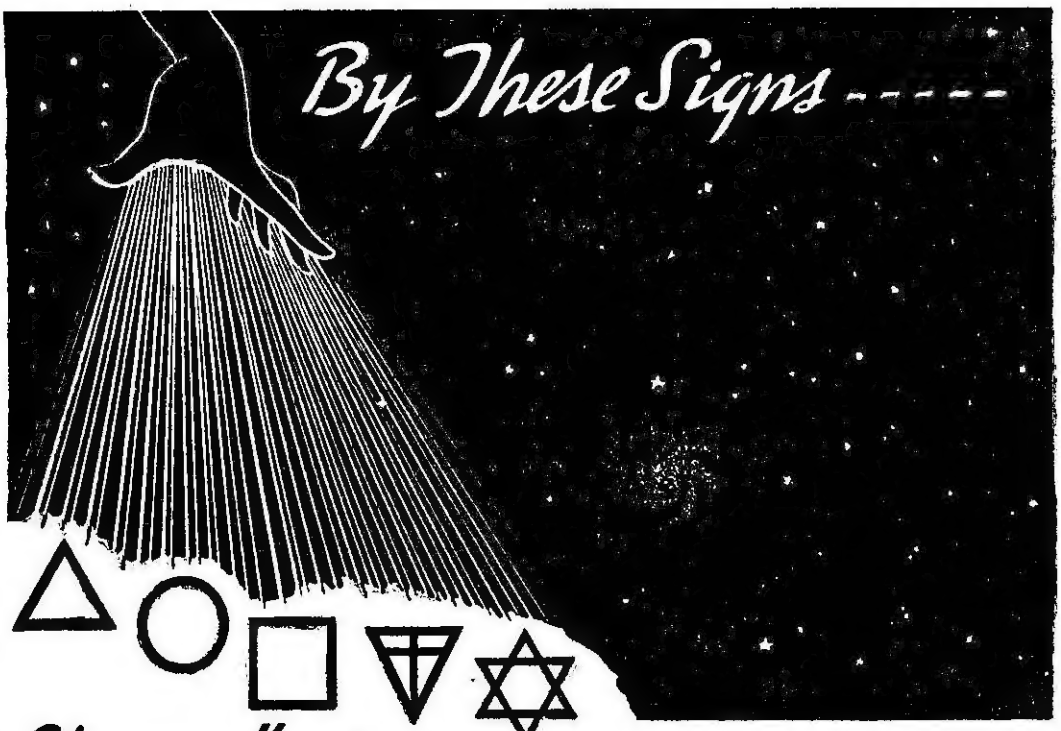

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"GOD GEOMETRIZES," said an ancient sage. Within the straight line, curve, and angle—and their combinations—exist the forces of creation. These *secret symbols* contain the mysterious laws of the universe. Upon their right use—or the neglect of them—the success or failure of every *human enterprise* depends.

Have you a desire, *something you wish to accomplish* in life? Put your finger on a dot. In whatever direction you move your finger from the dot, you have made a beginning. Thus a dot is the symbol of *one*—or a beginning. Your desire then is also symbolized by *one*. If you follow the *proper method* or way to accomplish what you want, you have arrived at point *two*. Whenever these two symbols are brought together—the idea and the right way—you produce point *three*—the success of your plan. Success, therefore, is symbolized by the three equal sides of a *triangle*.

In planning your personal affairs—business, domestic, or the welfare of your family—do you use a *Cosmic formula?* Do you determine whether your acts are in accord with Divine truths eternally expressed in symbols? Why does the circle represent completion? Why is it said that a man is on the square? These symbols are used by astronomers and scientists to prove the physical laws of the universe—why don't you apply them to the problems of your everyday world? Learn what symbols, as powers and forces of nature, you can simply and intelligently use in directing the course of your life.

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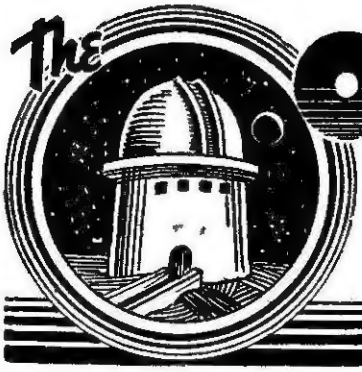

The OBSERVATORY by THE Editor

THIS issue was all made up when William DeLisle walked in with his manuscript for "When The Darkness Came". And yet, you'll find it the lead-off story on the contents page. Why? Read it for yourself and find out!

NEXT month, for reasons of paper economy, AMAZING STORIES is skipping an issue. There will be no October issue. And for that reason, we are making this one an extra special treat. If you'll glance down the contents page, you'll see what we mean: Thornton Ayre; Ross Rocklynne; Festus Pragnell; David Wright O'Brien; Frank Patton; and A. R. McKenzie. How's that for a line-up of stars?

FIRST we might mention a story you've waited years to see! A. R. McKenzie's "Luvium, The Invincible City". Last month we told you it was coming, and told you enough about it. So now we'll just say "Here it is!"

DAVID WRIGHT O'BRIEN'S last amazing story remaining unpublished for the duration is his "The Devil's Planet" in this issue. It's a long one, and we've saved it until now. We hope this war is over soon, and we can once more see new O'Brien manuscripts coming over our desk-top. We miss the lad . . .

"WAR WORKER 17" is Frank Patton's effort to fit our special "women in war work" cover for this issue. All (or almost all) magazines will carry covers built around this phase of the war for the issues on sale September 6, and we think Patton has written a corker of a story to go with the cover. Personally, we didn't know how he'd manage it!

"MADCAP OF MARS" is Festus Pragnell's latest Don Hargreaves story. In this one, Don runs into a mad little mess! And how! It'll tickle your ribs, and at the same time provide you with a pretty neat science fiction thrill.

NATURALLY Thornton Ayre's name means a certain type of story, and Ayre's right on the old beam with "Lunar Vengeance". It's a type of story we've grown away from, but Ayre can do 'em so we just can't resist hearking back to old times once in a while. And just between us, we think you like the old web-work master's work enough to rave over everything he writes.

ROSS ROCKLYNNE might not have a new idea in his "The Powerful Pipsqueak" but doggone it, he sure can lay on the thrills as we like 'em! And he rated 1-A for this super-special issue.

THAT seems to bring us to the end of our summation for this issue, so we'll just add a few odd remarks before we dig into our pile of exposed plates and see what's been stirring in the observatory camera's field these past thirty days.

FIRST, you can meet Frank Patton in this issue. His picture, and a short autobiographical sketch are on page 87. He tells us he doesn't really look like that, because he's just a bit older than the photo indicates. Lucky for us, or he'd be 1-A in the draft.

AUTHOR LEROY YERXA is the proud papa of infant number four. This one's a girl (that makes the score even) and Leroy's still wondering if it will grow up to have red hair or not. It seems even the baby is undecided. Now that's it all over, we can understand why Yerxa's manuscripts have been giving us headaches. We couldn't spell cat under such a strain! Authors ought to do one or the other: just write or just have babies. The two don't go together!

YOUR editor isn't himself either, these days; or we should say, these nights. He's had a series of dreams that are more amazing than any of the manuscripts that cross his desk. Briefly, in turn, he has dreamed he participated in the following actions related to the war: anti-aircraft defense; sub-chasing aboard a destroyer; bombing raid over Europe; commando raid; tank battle;

(Continued on page 70)

MOTORISTS *Wanted!*

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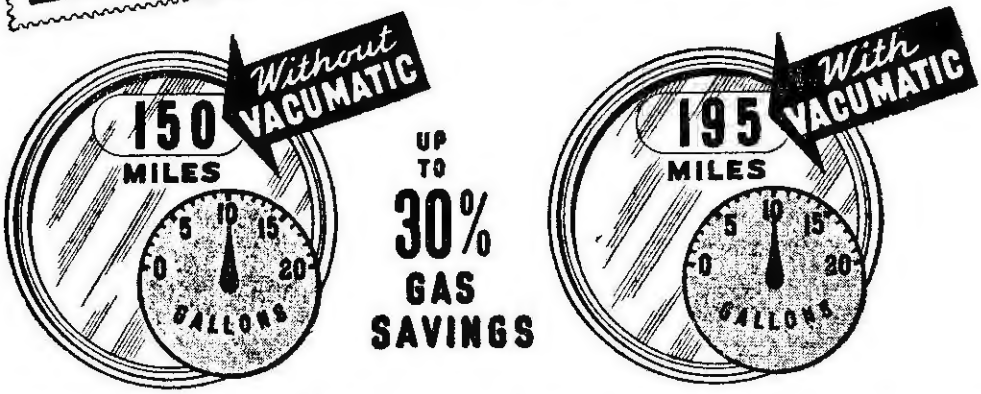

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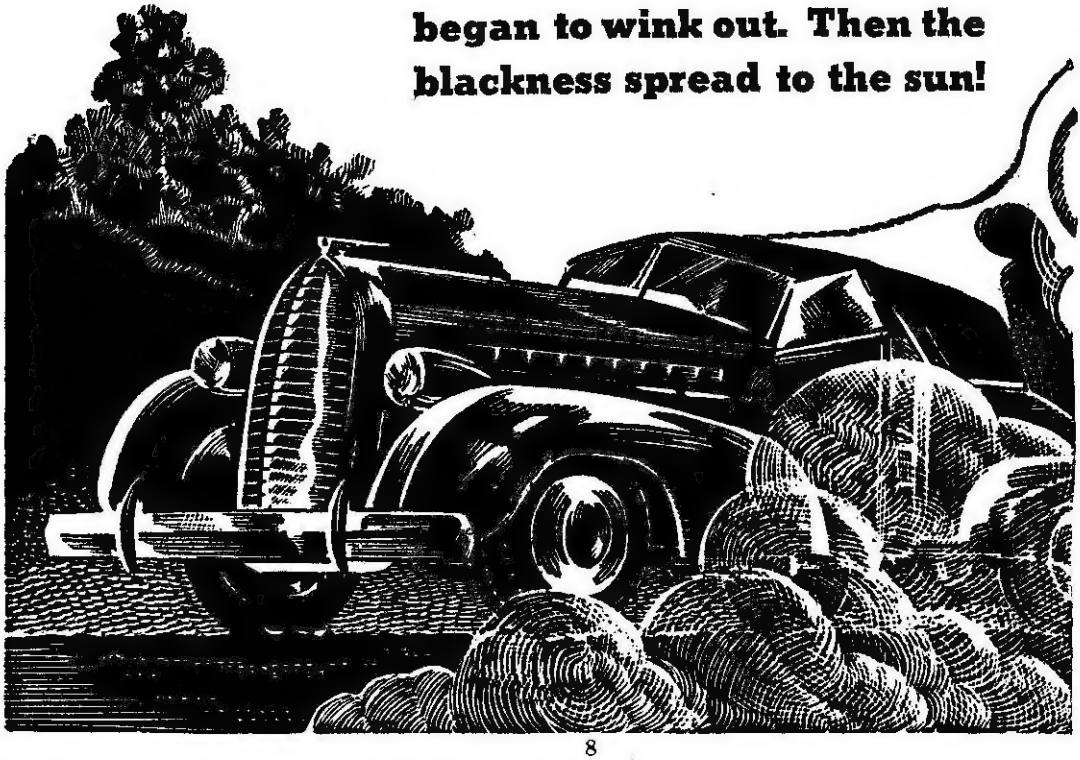
WHEN THE DARKNESS CAME

By WILLIAM De LISLE

THE Mad Years were reaching their climax—the logically inevitable culmination of the fantastic century that had gone before. It was as if some mystic Spider of cosmic malignance had bitten the Earth; its poisoned, helpless peoples made to dance an ever quickening, ever more convulsive tarantella. Most of them had forgotten how to be still; some had never known. The last tremendous convulsion, and the coma and death beyond, could not have been far away.

How the Darkness came to the world and its civilizations, its rulers and parliaments, its cults and propagandas, its armies and navies and air fleets, its cities and its crowds: of these things I do not write in detail. In such crammed canvasses of the great mass-human for-

Far out in space stars began to wink out. Then the blackness spread to the sun!



Oddly, for a second, it seemed their own bones could be seen!

est, the individual human trees are almost lost to sight. I write of just three people, a woman and two men: Margery Doran, Alan Rogers, and Noel Sterling.

Noel Sterling was the rawboned, dreamy-eyed artist whose murals in the new Metropolitan Opera House had made something of a stir the year before—but it would have taken more than that to swell his shy, retiring head. Alan Rogers' name was much more widely known, for he was Captain Rogers, the erratic, record-breaking pilot whose exploits in the air kept him very much in the news. Margery was—just Margery, and no one who knew her would have wished her to be anything more.

Her engagement to the famous airman had come as a surprise to everybody. Neither of them seemed to have very much in common. He was restlessly dynamic; he could never stay quietly in one spot for very long, he must always be doing something, going somewhere. His nerves were high-tension wires, and high-test gasoline raced in his veins. But Margery made you think of a summer day out of doors with a pleasant little wind waving the grass. Where she was, there at least the tarantella would slacken. Poisoned she must have been, for not even she could have escaped from her Age—but she must have had a milder bite than most, or perhaps she had an unusual resistance to its mental bane. (Very few were conscious even of the poison—that was the tragedy of it.) She seemed to find happiness in just being alive; and that may have been what had attracted the airman to her—she gave his high-tension spirit a semblance of the peace he had never really known.

The three of them were on their way to Connecticut, in Captain Rogers' chromium-plated road-plane (you could hardly call it a car), to spend a long week-end at the house of a friend of theirs in the heart of the Berkshires. Because Sterling's old and unassuming roadster had developed "something in the differential," Margery, completely unaware of the secret pain her nearness caused him, had prompted her fiance to offer him a lift.

AT ABOUT the time they stopped in New London for a leisurely lunch, an assistant at the Colonial Observatory in Hong Kong was excitedly awakening his chief, in the dark before the Eastern dawn, with the news of a strange little "blacked-out" area he had detected in the constellation of Lyra. By the time the chief got to the huge reflecting telescope, Vega, the constellation's brightest star, had become a dim blue vanishing speck, and he could see the blackout spreading as he watched, like a blot of soaking ink. Hercules, Draco, Cygnus, and Aquila turned green, then blue, then a misty purple; and before the first light of dawn began to pale the cloudless sky, they were gone.

The chief watched a little longer, solemnly intent, and then, "Something between them and us," he said tersely. "And not so far away, either. We're heading right into it."

He rushed to the telephone to give his government and the world the first vague yet historic warning.

As the concealing light of day spread across the Eastern sky, Australia and Russia took up the story and flashed it to the daylight hemisphere. The blackout was spreading apace, they said, riding up the heavens and quenching constellation after constellation. The whole Solar System, hurtling through Space on its endless, million-mile-a-minute journey toward that spot where, until a few hours ago, Lyra had been shining

for millenniums, was whirling into some spatial blind spot hitherto unsuspected.

First to go was the radio—the long-wave broadcasting band at the start, then the shorter waves, meter by meter, with an appallingly smooth swiftness, until even the micro-waves were still. Within a few minutes after that, the radiation of heat began to dwindle. Ahead there in Space, Light itself had ceased to exist—and irresistibly the Earth flew on toward the Dark.

In the world's laboratories, scientists grew grimmer with every quick experiment; theory after theory leapt to mind, was considered, was thrown into the discard, until gradually the awful truth grew clearer. Radio waves, heat radiation, light—these travel only by vibration through the ether, whatever the ether itself may be, and—the ether had ceased to carry them.

What little they could do the governments did, each after its own fashion and ideology, but the essential gist of all their messages was the same.

"Go home, and stay there."

Out from store and factory and office streamed the workers of the cities and the towns. Despite panics in some places, and even rioting in a few, and in all some very anxious traffic jams, this urban situation was on the whole well met and handled.

There was just time, before their short-wave radios faded out, to order most of the world's aircraft down to the ground; but on the long-distance routes there were some tragic exceptions.

Shipping in narrow waters was sent either to the nearest port, if near enough, or out to sea, preventing what would otherwise have been a chaos of traffic crammed between coasts which might soon become invisible, and therefore deadly. Even so, the toll of the sea was heavy.

On the railway systems of the world, all through trains were stopped and held at the first stations they reached, and the passengers hurried to such refuges as could be found. For a brief hour or so the Earth was like a kicked ant-hill; like ants its peoples milled and ran, directing or being directed, then the ant-hill quieted, was still—and waited.

BUT there was nobody to direct the three on the road.

They had lingered somewhat over their lunch, dawdled a little longer in the quaint old town's streets, so that it was getting rather late—about four-thirty—by the time they turned into the dirt road that leads to the foothills and then up into the mountains.

You will note the time. It was just before then that the radio began to fade. The first General Warning was heard only in the immediate surroundings of the various broadcasting stations. Captain Rogers' car-set never picked it up at all. In fact, thinking (quite naturally, as many thought at first) that the fading was due to some defect in the set itself, he had already switched it off—much to Sterling's relief, for a crooner's nasal caterwauling had been clashing most abominably with both his artistic temperament and the scenery.

Just as naturally, they missed the more detailed and imperative "repeat" that was sent out a little later throughout the telephone and telegraph companies' networks. There was nothing to prompt them to drive to the nearest telephone or telegraph office. If only they had passed through a village, either then or at any time during the next half-hour, the police might have stopped them and told them, under the general police order to stop all cars. As it was, the only warning they had was from the sky itself. The thing came on

them just as it must have come over the millions who lived in the Outer Earth, with nothing whatsoever to prepare them for what it was going to mean.

The day had been typical of early summer, pleasantly warm, the sun pouring down its rays from a bright sky of slow-moving cirrocumulus clouds, high and white and clean. Its radiated heat was failing now, cut off by the growing ether-barricade; but the earth had already absorbed nearly a whole day's warmth, was a reservoir of warmth that would take some time to drain, by conduction through the air, to the cold of Outer Space. So the three in the car did not notice this growing impotence of the sun -not until the blackout began on the rays of the visible spectrum, and then everything else was forgotten in their wonder at the changing light.

Wireless, heat, infra-red, red, orange, yellow, green, blue, indigo, violet, ultra-violet so runs the shortening order of the ether-wavelengths. Though wireless and heat had ceased to radiate, the three in the car were still unwarned. Red went out of the spectrum, orange faded after it—and Sterling commented on the wonderful mellow green that had come over earth and sky. One can understand his reveling in that light, for it was amazingly beautiful. They did not look at the sun itself, not yet. One does not normally look at the sun. If they had looked, they would have seen that it also had turned to a golden green.

Then, imperceptibly, the yellow faded out, and the green cooled to a deepening, darkening blue. It was as if an invisible blue veil were spreading over the sky. There was no other color left. In that light the green countryside took on an added bloom, a strange bloom, fast dimming to an under-sea translucency that sent the artist in Sterling into a silent ecstasy—until, from the back seat where he sat alone, he caught sight of his own face over Margery's shoulder, in the rear-view mirror. It too was blue, a ghastly, purpling, corpse-like blue. So also the back of Margery's neck, her hands on the steering wheel. Something queer about that light!

Amazed, he looked for the first time at the sun. It shone between two pale-blue clouds, from a patch of sky that was royal-dark purple; and it shone coldly, hardly brighter than a moon, and darkening even as he looked.

The world now seemed to be shuddering under the shadowing of unseen wings.

"Strange," said Margery, "how dim it's getting." Her words marked the beginning of dread.

THERE was reason enough for dread. Fast came the darkening now. A cloud hid the sun and the world was spectral. The cloud passed, and the sun gloomed like the icy eye of a Gorgon, petrifying all things to the hard horror of an Antarctic Hell.

"Good heavens!" Sterling exclaimed. "Is the sun . . . going out?"

He bit his lip. You may think that sort of thing, but you must not say it.

"Hell, it *is* getting dark," said Rogers, with a halting catch in his voice like that of a swimmer who finds the water cold. "Let me take the wheel. I'll drive. I don't know what's happening, but we'd better be moving along. . . . Can hardly see the road now. . . . Holy smoke!" He had switched on his headlights and they had apparently failed to come on. He knew the battery was well charged. Yet—no sign of light on the road. And the dash-light, which should have lit up clearly, showed only a dim violet-blue, hardly visible at all. "I don't like this," he grunted, peering ahead into the incredible darkling. "And it's getting worse."

A sudden roughness under the right wheels. Sharply, a little too sharply, he swung for the middle of the road again, over-swung, and had to yank the wheel back.

"You'd better stop," said Margery. "We can't go on like this. What can it be? What—what's the matter with everything?"

Nobody answered, but Rogers obeyed her. There was nothing else to do. Night had come striding hours ahead of time, a night that even his powerful lights could not penetrate—yet the sun still hung in the sky, like a drowned thing glimmering with a dying phosphorescence through the depths of an airy sea.

Still preoccupied with the failure of the lights, the airman got out of the car and went to have a look at them. He could not yet realize that the lighting mechanism of man had to share in the sun's eclipse; that all light, no matter whence it came, was fading. The headlights showed just the faintest purplish glow in the filaments themselves, casting no light whatever on the road.

He straightened himself up, stood still a moment, shut his eyes tight. He opened them again, shivered a little, and came back to lean over the door of the car. A bluish spark glowed under the top. One of the others had turned on the tonneau light, but it was as useless as the headlights. Somehow Rogers crushed back the panic that had assailed him.

"I'm afraid I . . . can't drive any more," he told them in a choked voice. "I—I'm going blind."

"We're all going blind," Margery answered, hardly above a whisper. "But —why?"

For a little while they were silent. Sterling and Margery in their seats, Rogers leaning in through the window, their minds struggling under wave upon breaking wave of wild imaginings. Was this some mysterious infection of the eye that had stricken all three simultaneously?

Then: "We're not the only ones in trouble," said Sterling in a voice of dawning awe. "Listen to the birds."

AT THAT, the other two realized that for some time they had been hearing a bird-crying akin to the settling twitter of dusk, but louder, with an unwonted uneasiness in it. Until the artist's sensitive ears and mind had caught and interpreted that note, they had heard without listening. Now, as they listened, it was as if all the wild things around the countryside were groping in blundering terror for their nests and holes and burrows, crying to their mates and their young, crying one poignant blended question to all the unanswering universe.

Motionless they listened, in a daze that took them outside and beyond Time. To describe that state there is but one word, the old Bible word: they were astonied—with fear and wonder.

"The sun shall be darkened . . ."

Was that awful spectral orb about to set for the last time?

Another cloud passed before it, and the world went black, with a blackness that seemed to them absolute. They had yet to experience real blackness.

The only light remaining was the cloudy blur where the sun had been, a blur as ghostly as the dash light had been. (Their puny head lights and the one under the top had died altogether now.) The three stared at that blur in dread, fearing every moment that it would fade out and leave them utterly to the dark. But as the cloud-veil thinned and passed, the sun's ball took shape again, and now they stared at it as if to will it to stay.

For a time it seemed that it obeyed

them. Either the Thing slowed now in its action, or the shorter end of the ether waveband held out more tenaciously against it, the ripples persisting though the longer waves had gone. The sun sank to its setting, a phantom of the sky, a-flicker with strange unsteady little rays of dimmest violet, fading, fading behind the thickening air-veil, and at last . . . gone.

And now there was blackness indeed, absolute, blind.

For a time that was outside Time, then, they waited, helpless, dumb, almost without power of thought—three spirits stunned and drifting in a Void.

Then the first paralyzing shock began to pass. The mind groped again for the snapped and tangled wires of Reason, restoring the shorted circuits of the brain, until the inward lights came on again, dim at first with the uncertainly pulsing current, but gradually gaining strength and clearness.

It was Sterling, the artist, the man of temperamental imagination, who was the first to stir himself, to grasp at something of the truth that the birds had tried to tell. He grasped it more quickly and much more clearly than the aviator. The matter-of-fact brain is at home only in a matter-of-fact world. Turn the world suddenly upside down, tear up the rails on which it runs, hurl the whole thing out into the blank mystery that stretches illimitably above, below, on either hand—and only that leaping genius which is so often said to be akin to madness can even begin to guess at what has happened, let alone brace himself to fight for life and reason.

This was no mere human blindness, but something wrong in Nature herself, some huge deficiency in a law which one had always accepted as perfect and unchanging. That thought was terrifying in itself—it left no certainty anywhere. If Light had failed, then the rest of Nature's machinery could as easily follow it. The ground might open underfoot and let them through. They might be swung off dizzily into Space, with gravitation but a remembered dream. At any moment.

But those things had not happened yet, Sterling told himself, and there was Margery to think of. That steadied him.

So the dreamer became practical—while the one whom the world would have called the practical man of the two, the doer, the up-to-the-minute product of the Gasoline Age, still leaned there against the car, entranced and futile.

CAPTAIN ROGERS could have met any normal emergency of the road with that cold-blooded yet instantaneous reaction which is par excellence the stamp of the top-rank pilot. Indeed, it was only when meeting emergencies in the air that he really felt alive. But this was not one of them. He had lived by machinery all his life; but now it was as if some nightmare metamorphosis had changed it all to a pile of junk. His world was gone, and in this new black world he was an utter stranger, far more terribly lost than by any mere physical blindness.

"How far," Sterling asked, "to the nearest village?"

Rogers started, came half out of his nightmare, gave muttered answer. "I don't know. I can't remember . . ."

He could hardly be expected to remember; he had only been over that road once before. When a man is used to speeding through the countryside at anywhere between fifty and eighty miles an hour, he does not take any notice of the small villages he passes.

"Maybe the road-map," he muttered, and fumbled for it and for his flashlight.

But the flashlight did not even show a glow. Not the most powerful searchlight on the planet could have given light now.

The flashlight dropped on the seat. The map fluttered after it.

Silence.

"We can't stay here," Sterling insisted.

"We can't drive on—through this," said Margery.

"Then we'll have to leave the car and walk."

"Leave the car?" Rogers cried, as if Sterling had suggested some lunacy. Pause. All three felt a shrinking sensation. It was like the thought of plunging, at midnight, into a black river of unknown currents, full of unseen rocks and dangers.

"We'll have to stay where we are," the airman said tonelessly, "until this lets up."

"There's no telling when it will let up," Sterling countered, wondering in his appalled mind if it ever would. "I don't want to frighten anybody, and I know it all seems absolute madness, but we got to face facts. We haven't any food, for one thing, and—"

"But," Margery broke in, "we can't even see the road ahead of us."

"We can feel it with our feet. And it's bound to lead us somewhere. Come on! The longer we wait the worse it'll be . . . I'll take the left. You walk between us, Margery. One of us'll feel it right away if we stray off the road on either side. We'll have to link arms, too, or we may lose each other."

That precaution was prompted by another ghastly flash of imagination. Suppose sound ceased also, and they could not call to each other?

Sound-waves, however, t r a v e l through the air, a material substance. Only the destruction of matter itself could have destroyed sound. So from the added horror of silence the world was safe.

"Anything we want to take with us?" Sterling went on.

There was another hesitating pause. Everything they had with them, except what they could actually carry, would have to be left with the car—and civilized man abandons his possessions no more eagerly than he does his wheels.

"My coat," said Margery.

"Yes, w'd better take our coats. It may be quite a while before we find some kind of shelter, and it may get cold later on."

"Oh, and my golf shoes," added Margery. "I couldn't walk very far in these."

STERLING nodded approvingly in the dark, thanking Heaven for Margery's common sense. There was some delay while she felt for her bag and then for the shoes—they were all three incredibly clumsy in their sudden blindness. Yet there was a spark of brightening light somewhere within them. The end of that idle waiting, the thought of trying to do something for themselves, was strangely heartening now. Once the crucial effort of decision has been made, it always is.

So they started, floundering three abreast along the unseen road, veering from side to side, stumbling much at first, then gradually gaining confidence, giving up their futile, instinctive attempts to see where they trod, learning to walk with heads up, as the blind walk, using all their other senses to the utmost.

But for an occasional sweep of uneasy wind in the nearby bushes and trees, their hesitating footsteps made the only sound in a vast silence—for even the birds were quiet now. It was as though the world had gone dumb with fear.

"If we only knew what it was," Margery burst out once.

"How in Heaven's name can we?" came Rogers' answer, high-pitched, almost in a snarl. Sharply, and just as instinctively as he had reached for his map and flashlight back at the car, Margery turned her head toward him in surprise—but saw only the unutterable blackness. And it was then that she felt the first stirring of that sixth sense which, in greater or less degree, came back with the Darkness to all us humans from the depths of our aeons-lost animal past. She felt the strained aura of him, and shivered at the barely suppressed panic that was in it—and shrank away from it, toward the quieter aura of controlled calm that was Sterling. An unthinking reaction, of which she was instantly ashamed. Alan was her man, and he needed her.

The airman felt her arm tighten in his. For a while that pressure, and the dimly felt force of heart and mind that flowed through it, had a quieting effect on his hard-pressed spirit.

"There's no *way* of knowing," Sterling was saying. "But we're still alive and well, and we're on our way to shelter. That's enough to go on with. We'll just have to take things as they come."

But as he spoke it struck him that they might easily pass very close by the shelter they sought—a house, or a side-road leading to a farm—without knowing that they were there. It was no use looking for lighted windows. They might hear footsteps or voices, or perhaps the whining or barking of a dog, that was all. They would have to shout at intervals, then, and listen for an answering call, and if they heard it, try to find their way toward it by its sound.

Sterling had no more than the ordinary man's elementary ideas of science. Margery's remark, "If only we knew what it was," kept ringing in his brain, and he struggled in a morass of futile speculation. Realizing its futility, he managed to struggle out again. It was not science they needed now so much as human courage, a thing more of the spirit than of the mind.

ALL three fought for it as they struggled on. Rogers fought instinctively, desperately, a losing battle against demons of fear. Margery . . . was schooling herself to endure. If she were frightened, as she must have been, she gave little sign of it now. Perhaps she was leaning on Sterling, as women have leaned on men, in extremity, from the world's dawn. Or perhaps she was herself strengthend by the knowledge that Rogers was leaning on her. Later, Sterling was to see something of her real strength, and draw fresh courage from it.

He himself was battling with demons more sinister and far more explicit than the airman's, for though this blackness was literally pressing on his eyes, there was still light in his mind, the lurid light of the wild imaginings to which his temperament led him. Imagination had helped him to withstand the first shock, but now it was pressing him hard.

Until suddenly it came to him—a realization toward which he had been groping from the first—that he was the leader there. He must try to think of the immediate things.

"How much further did we still have to go to the Warrentons' place?" he asked.

"Eh?" Rogers said dully. "Oh . . . about thirty miles, I think. We'll never get there now."

"I'm not trying to get there," Sterling answered, with rigidly suppressed impatience. Why couldn't the man pull himself together? What was the sense of blurting out obvious things like that?

"I'm just trying to figure out how soon, at the latest, we're apt to run into some sort of habitation again. Try and remember. Is there anything in between?"

"There's a little village about three miles this side of the place."

"Can't you remember anything nearer?"

"I tell you I don't know this road," Rogers flamed out. "If I had only looked at that damn map before the light went—"

"All right," Sterling broke in sharply, trying to inject a steadying command into his voice. "We'll just keep going then till we do strike something . . . It's like playing a new game, this. We'll have to make up the rules as we go along. We'll start with Rule One now. Stop and shout."

They shouted, but no answer came.

"Better luck next time," Sterling commented. "Anybody like a smoke?"

"I'll have one, Noel," said Margery.

He took out his case, felt for a cigarette and put it in her hand. He struck a match—he heard it strike, but failed to see the slightest hint of a flame. Nor could he see to light her cigarette for her. Even in those small things they would have to learn new rules. He handed her the match-box.

"Better light your own," he told her. "You can feel to do it better than I can." Then he exclaimed suddenly as the match he had been holding in his hand burned down and scorched his fingers.

IF STERLING had possessed a scientific brain, those things would have told him much. Matches could still burn, but their burning could not be seen, could not even be felt except by actual contact with the flame or with the heated air that radiated from it. If matches could still burn, then so could the sun; but the same failure of the same all-pervading ether had stopped the radiation of the light and heat of both. Here was the key to everything, if only he could have recognized it. If he had recognized it, he might have been forewarned of what was still to come.

As it was, he was warned only of immediate danger—a danger appalling enough. Fire! A dropped match might start a brush fire, a conflagration—and the first they would know of it would be the smell and sound of its burning. Without sight they could never put it out. They might even be trapped in its invisible flames and smoke, run right into the worst of it in a blind attempt to escape. And the danger was not only to themselves. The weather had been dry lately. A forest fire would do terrible things if unchecked.

Rule Two!

"Be very, very careful with that match," he warned the girl. "Be darn sure it's out before you drop it. And when you're finished with your cigarette, tramp on it with your foot—and then feel it with your fingers." And he told her why.

(A little earlier, by telephone and by word of mouth, the governments of the world had been broadcasting the same warning. To some it came too late. Of such tragedies, that of the liner President Roosevelt, in mid-Atlantic, was perhaps the worst. The burned-out hulk was not found for weeks, and the only other clue was a lifeboat filled with frozen bodies.)

How many more of those strange and new dangers and pitfalls, Sterling wondered, would they meet and have to guard against? He would have to be always on the watch for them. If an ordinary everyday action like striking a match had become risky, then risk

might lurk in almost any of the things that one normally did without thinking. He would have to try always to think before he acted. Could he stand the constant strain of that rigid vigilance?

That brought the demons back again. Suppose this Thing went on, everywhere? Could Life adapt itself to a world without Light? Could Nature herself continue? Did not all plant and animal life, including their own, depend at bottom on light? Without it, how long would it take the world to die? Days, weeks, or months? Or would some sort of life drag on for years before the long-lingering finish came? Wait! Life *could* go on in darkness, life of a sort. There were living things down in the depths of the ocean, beyond the utmost reach of light. And in those weird Kentucky caves . . .

If Nature evolved a land-life that could do the same, what would the darkened world be like a thousand years from now? Would strange new creatures, knowing nothing of each other's livid white hideousness (of course they would be livid white, like a plant that has tried to grow in a cellar), go crawling among rank plant-growths as colorless as themselves?

That was gruesome. He *must* try to keep his mind on the immediate things.

"Tired, Margery?"

"Oh no. I can keep going a long way yet."

Sterling had always been helplessly tongue-tied in her presence, but he felt nothing of that now, because such things as love and sex-attraction and sex-shyness were a million years away, in a life that was past and gone, a dream of another planet.

THEY trudged on, silent, beginning presently to tire, panic never far behind them, watching its chance, seeking the least crack in their spiritual armor.

After a long time, by the feel of the road underfoot they thought they were going uphill, and decided they must have reached the foothills. When they had gone perhaps a mile further they walked suddenly into a belt of clammy cold that nearly gave panic its chance. Then Sterling remembered how a chill damp may rise near a river or a stream, and with that he became conscious of a growing thirst for the first time. But even as he stopped and listened for the sound of running water, he realized they did not dare leave the road. They might never find it again. Only if the road actually crossed the stream, by bridge or ford, could they drink.

The road leveled off again, and seemed to him to turn a little to the left. Probably it was skirting a flank of the hill—there might be a brook not a hundred yards away, there on the right. Sterling was hoping to feel the road turn that way, and after a while his hope was fulfilled. Then the road dipped promisingly. And finally Rogers, on the right, floundered into the stone coping of a bridge.

In single file, with great caution, holding hands at arm's-length, they crept down the bank. Suddenly Rogers, who was leading, tripped and fell forward, breaking the chain.

"Damn!" they heard him groan from below. "It's a railroad!"

"Are you hurt?" Margery cried.

"No, nothing that I can feel. Stay where you are. I'm coming back to you."

Bruised by the fall and scratched by the cinders of the ballast, he felt his way up again. He touched Margery first—and heard her little sigh of relief as he spoke to her.

"Where are you, Alan?" Sterling was feeling for him.

"Here."

They linked arms again and climbed back on the road.

No water yet—but surely that railroad meant humankind, not too far away.

They crossed the bridge. They had gone about fifty feet on the other side, when: "Who's there?" a voice called, a woman's voice right in front of them —and surprisingly calm.

They stopped dead in the abrupt, astonished joy of it. Margery was the first to answer.

"There are three of us—lost on the road. We had to leave our car a few miles back. We couldn't see to drive."

In another moment she felt light hands on her face. Then they dropped with practiced sureness to her own hands, felt the two men's arms, and fell away.

A LINGERING doubt that had alternated between fear and hope from the beginning in Sterling's mind was now dispelled. He had thought it just possible that the bird-crying had deceived him, that only they were blind. But by the way she had felt them, this woman also must be blind. Then why was she so calm? Had some explanation reached her, some explanation broadcast through the country, which they, isolated on the road, had missed?

"Do you know what's happened?" he asked directly.

Pause.

"Then—you don't know either?" was her answer.

There was a little tremor in her voice now, but it was gone when she spoke again. "Come with me," she said. "Follow close behind me. I know my way . . . Be careful here—there's a ditch." They felt a plank-walk underfoot, then heard a gate creak. "Come right through the gate . . . and right up the garden path . . . Two steps up, and this is the front door." She paused there. "You folks must be tired. How long have you been walking?"

"Since about six-thirty, I think," Sterling said, and introduced himself and the other two.

"I'm Mrs. Cranshaw," said the woman. "I live here with my husband. We're kind-a isolated. The nearest town is Mercer, about four miles up the road, and that's only a little place."

Sterling wondered what the woman was like. Her voice, the only thing he had to go by, gave no hint as to her age, but only that she hailed from the New England backwoods and that she appeared to be quite calm. This last, under the circumstances, seemed very strange indeed, and kept puzzling Sterling until the woman spoke again. Then the reason for it was clear.

"All this makes no difference to me," she said, as she opened the door. "I been stone blind for two years. I wouldn't even have known there was anything wrong if my husband didn't tell me. And even then I wasn't sure that it wasn't just something gone wrong with his eyes. But you folks are all blind too, so . . . Well, come in."

Gropingly they followed her inside. A clock was ticking somewhere near.

"To the right," she directed, and they passed through another door. "Now, if you'll just stand where you are, I'll lead each one of you to a chair . . . There we are. Make yourselves comfortable and rest awhile. You must-a had a pretty bad time."

Pretty bad!

Another voice, that of a man, rather gruff, and having in it something of the same nightmarish quality as that of Rogers, spoke from somewhere in the room.

"Then it *was* somebody, eh?"

"Yes—I was sure I heard them coming."

"Well, you got better ears'n I got. I didn't hear nothing. And—they're all blind too, like me?"

"Yes, we're blind," Sterling assured him.

"That's my husband," said Mrs. Cranshaw, and there were more introductions.

"And now that you're here you better stay put." Mr. Cranshaw's voice rose. "I wouldn't send a dog out in that. Lord help us!"

"We're very much obliged indeed," Sterling said, turning in his direction. The weirdness of the meeting was very strong on him. Voices, touching hands—it was as if they were meeting fellow spirits, still earthbound and half material, floundering around in the first appalling strangeness of a universal sudden death. But the blind woman gave him comfort. She, at least, was all but normal. She was used to this blackness. He almost envied her.

"I reckon you could eat something," she said.

Eat? In this? Yet suddenly they realized they were starving. Margery offered help. The blind woman gently refused it. "I can manage," she explained. "I'm used to it. You ain't. I know where everything is."

She went out.

THEN both Sterling and Margery felt the rising of a queer taut aura in the room, akin to what they had felt in Rogers but more intense, with an uncomfortable added suggestion of a spirit which, though in mortal fear itself, could still gloat over universal fear. It was not long in declaring itself. The husband's voice struck harshly through the uneasy silence.

"If this don't end real soon," it said slowly, with grimly deliberate emphasis, "no soul on earth will be saved."

"That's possible," Sterling admitted, speaking as lightly as he could, though he felt his scalp crawling. "But must we talk about it?"

"They ain't nothing else to talk about," declared the man, and plunged into a jumble of apocalyptic biblical prophecies. They rolled from his invisible mouth with an unction that was grisly to hear. "The earth shall dissolve —"

"Oh, for Heaven's sake, stop it!" Rogers cried suddenly, in the high, quivering voice of a man already at the gates of Hell. But Mr. Cranshaw did not even seem to hear.

"Let him be," Sterling muttered, groping for the airman's ear. "Pay no attention to him, or you may make him worse . . . I wish his wife would come back," he whispered to Margery, who had also felt her way to Rogers' chair. "She seems pretty sound. She may be able to handle him."

A faint clatter of cups—then sure footsteps drew near, entered and crossed the room.

"That'll do now, Jim, please," came Mrs. Cranshaw's quiet but firm voice. "I'm sure you're worrying our guests. We can't all be students of Holy Script, you know . . . I made tea, 'cos it wouldn't take so long to make and I figured you folks was hungry. Cream and sugar, Miss Doran? I better put it in for you."

"Cream, please, but no sugar."

The incredible incongruity of it all!

"Sugar, Mr. Sterling?"

"One and a half, please. I'm afraid we're giving you a lot of trouble."

"No trouble," she assured him. She felt for his hand and put it around the handle of the teacup. "Mr. Rogers, sugar?"

Then she set a plate of sandwiches on the floor beside each chair.

It was a strange and rather difficult meal; but at least Mr. Cranshaw's biblical prophecies had ceased. It was already evident that Mrs. Cranshaw's was the stronger mind of the two.

"It's too bad we ain't got no phone here," she said presently. "This is one time we could sure have used it. 'Cos they're bound to know something in Mercer, don't you reckon?"

"Well, yes—at least, that's what we thought," said Sterling.

"That's why we're rather anxious to get there. You see, as long as you have a road under your feet, it isn't so hard to find your way—once you get used to it, I mean. We ought to be able to make it in a couple of hours, don't you think?"

"Oh, but you ain't going tonight. You're all tired out, and I won't let you."

THE clock struck ten, and Mrs. Cranshaw began talking of sleeping arrangements. It was only with difficulty that they managed to dissuade her from giving up her own room to Margery and the guest room to the two men. Eventually Margery took the guest room and Sterling and Rogers the sitting-room, one in an easy chair and the other on the couch.

They had been three hours on the road. The world might be coming to an end, as Mr. Cranshaw so luridly insisted, but tired bodies still demanded sleep.

Rogers threw himself down on the couch, tossed around for a minute or two, then began to talk.

"I'm sorry, Noel," he said rather unsteadily, "for being so—jumpy. Nerves in pretty bad shape, I'm afraid."

"This is enough to make anybody jumpy," the artist said soothingly. "But it can't go on forever. We just got to keep a grip on ourselves while it lasts."

Pretty dangerous ground. It brought back his own loathsome dream of an Earth perpetually dark and dead—or peopled with livid reptilian blind things. Did the same dread haunt the airman's mind?

"Get a grip on myself?" Rogers answered, his voice beginning to rise again. "Haven't I been trying all the time? And it's no use, I tell you. How the devil you can stand it . . . I tell you it's driving me crazy! And that's because, if you want to know the truth," he went on in a sudden rush of words, as if some mental sluice-gate had burst open, "I'm nothing but a washout. I've always been a washout, and I've always known it, too. And now I just can't hide it any more, I guess. I'm no good to Margery or to anybody else. I wish I had crashed and ended it long ago. But no such luck. I had to go on and be a hero. A hero! Bah! If they only knew the truth, those fools of newspaper writers . . . Yes, and don't think I haven't wanted to shout it from the house-tops, tell the whole silly world about it. Tell them all, and then crash!" His voice broke. "It would have saved —some people—a lot of—"

"Now, listen," Sterling interrupted, horrified at that bitter outburst. "You just got to pull yourself together."

"It's easy enough to say."

"I'm not finding it so easy."

"Sorry," Rogers said heavily.

"I'm trying to look at it this way," Sterling persisted, doggedly but without much hope. "We've all gone blind for the time being, like Mrs. Cranshaw. All right, let's be like her and not try to look ahead at all. Take things as they come. We're all right so far. We found a place to stay and food, and we're going to get a night's sleep. You're bound to feel better in the morning."

"If only this maniac would stop spouting those texts of his—"

"I know. It *is* unnerving. I've always hated that kind of stuff myself. It's really a mental disease, worse than actual insanity sometimes. It's the sort of thing misfits and failures go in for. It comforts them to think that some day everybody who isn't just like themselves is going to get it—from some kind of private god who'll pay off their envious scores for them, give the whole world hell for not taking enough notice of them. And they call themselves the *meek*, who shall inherit the earth! Of all the crazy notions! . . . Why, Margery!"

"I CAME in to say good-night—and I couldn't help hearing what you said." She sat down on the edge of the couch beside the airman. "Come over here, Noel," she went on. "I'm going to try and say something to you both, and we don't want to disturb the Cranshaws." She waited for Sterling to join them, then began, "I—I don't usually talk about these things. I mean, I never did, as a matter of fact—but that doesn't mean I never thought about them. And—well, I was just wondering, don't you think maybe there's a sort of—crazy inverted sense in what Mr. Cranshaw's been raving about?"

"Good Lord, you don't mean . . ."

"This darkness. He thinks it's the work of God, of some vengeful, spiteful Old Testament god, the same as floods and droughts and plagues, and terrible storms at sea, and—oh, everything that goes wrong in the world. But surely God, the God we understand, doesn't will those things."

She paused, began half-ashamedly to explain once more that she wasn't very good at that kind of talk. Sterling knew what embarrassed her. It embarrassed him just as badly. In those days only paid preachers were supposed to talk about God.

"But when things get beyond us," she stammered on, "what can we do but . . . turn to God, and think about Him? And I can't help but believe there must be a reason for everything that happens. There must be a reason for this. Oh, I don't mean a scientific reason. That would only be a label. People have an idea that when they've labeled something they've explained it. Science may be able to explain *how* this darkness came, but it can't explain *why*. Don't you see what I mean? God could never have made this horror. But somebody must have made it. And—I think we made it ourselves. Aren't we all parts of some huge Whole? And if one part goes wrong, won't that upset the Whole? Was Moses just talking nonsense when he warned the Israelites that if they disobeyed God's laws, the laws of the Whole, everything around them would spoil—crops, cattle, and even the climate? Or was he saying something that our science is just beginning to guess at now? . . . Mr. Cranshaw says this darkness is the work of God. I think we brought it on ourselves—actually *wished* it on ourselves, until God was forced to do it. Not so much to punish us, because God is not vindictive, but to teach us a lesson."

"You mean that He will turn evil into good?" Sterling asked.

"Yes. Or at least, that's what I think. I mean, if this darkness is everywhere—all over the world—won't it stop things?"

"Stop things? It must have stopped *everything*," Sterling answered. "But—"

"So that everybody will have to sit still, as we're doing now—and think! Oh, I know it's going to mean death for some, maybe even for us—but that's a lot better than things would have been if the world had gone on as

it was . . . God doesn't punish and destroy. I *won't* believe it. He tries to save us all the time—from ourselves."

Well, if that was her faith, Sterling thought, it was a lot pleasanter to hear than Mr. Cranshaw's rantings. It seemed to help even Rogers—though perhaps what really calmed him was her nearness.

"So—I can't lose hope. We mustn't lose hope. And now," she finished. "I think we'd all better get some sleep. Good-night."

IT WAS some time before Sterling could get to sleep. Margery's words kept running through his brain. She might be right. Even if it was, as Cranshaw insisted, that God's own hand had spread this darkness, couldn't it be, after all, a surgeon's merciful hand? Even if it did mean death for many, it surely couldn't equal the holocaust of another war. Why, it could hardly equal the daily slaughter on the highways.

If only it would, as Margery said, make the world sit back and think!

He heard the clock strike one. After that he drifted off into a heavy sleep, and slept right through until seven-thirty when he woke up, feeling chilled, to a sound of steady rain.

He heard the clock's single stroke, but as that didn't mean anything insofar as telling him the time, he lay waiting in the blackness for it to strike the next hour. At last it came. Eight o'clock—and the dark as deep as ever. He had faintly hoped . . . but no use thinking of that now. He had to face the first full "day" of it, and that was daunting.

Margery was already in the kitchen with Mrs. Cranshaw, trying to learn. It was not easy; and presently the two women ran into a new and puzzling difficulty, the same thing Sterling had discovered when he had struck a match on the road and felt no warmth from it until it had burned him—a thing Mrs. Cranshaw would have discovered herself when boiling the kettle the night before, if it had not been boiling already on the stove, still alight from an afternoon's baking.

She usually cooked on an oil stove, finding it easier than the range. Everything in her kitchen had its own place, and this "morning" she went unerringly as usual to the matches, and lit the stove. Again as usual, she felt for the increasing heat that would tell her the wicks were burning, but no heat at all came out of the burner-door. She struck another match and tried again, but still the wicks didn't seem to catch. Out of oil? She jogged the little fuel tank, and the gurgling noise told her it was half full. Then, as if still not convinced, she dropped her hand on the stove-top—and snatched it away with a cry. The stove was burning after all. Bending over it again, she felt the uprush of flame-heated air and fumes.

But again the full significance of the thing was missed, as Sterling had missed it the day before. Finding that the stove was alight after all, Mrs. Cranshaw just went ahead with her breakfast preparations, the strangeness of her failure to feel any heat radiation through the burner-doors dropping to the back of her mind.

AS SHE worked, she and Margery talked, and it wasn't long before the blind woman was telling something of her lonely life there with her husband. Mr. Cranshaw, it came out, was a war veteran, who had been wounded and gassed, and invalided with a pension that was just enough to keep the two of them alive. Living was cheap

there on the edge of everything, but it was no good for Jim. Except for pottering around the garden, the man had nothing to do—no other men to talk to—and when he should have gone out and tried to meet people, he preferred to sit with his Bible, spending more time over it than she altogether liked. It had seemed to grow on him—though she had never realized how far gone he was on it until the Darkness came.

"I'm really anxious about him. I wish there was some way of taking his mind off of it. I can usually stop him talking about it, but I can't stop him thinking."

"I'll do all I can to help," Margery said gently. "And I'm sure Mr. Sterling will too when I tell him."

She told Sterling right after breakfast, and he felt ashamed of his outburst of the night before. He would have to find some way of making it up to the poor man. And see that Rogers understood. This morning the airman seemed to have sunk into a lethargic dullness that made Sterling more anxious than ever for his sanity.

"We'll have to get to the village as soon as we can," he told himself. "Action is the only thing for him. But that means leaving Mrs. Cranshaw with a man who's not far from a religious maniac—and after Margery promised to help her with him too. What am I going to do?"

The rain settled that question. During breakfast—a groping repetition of the scratch meal of the night before—it increased to a lashing roar on the roof, a downpour into which Mrs. Cranshaw refused point-blank to let them venture.

"If you must go," she said when Sterling tried to insist, "you can at least wait till the rain stops. But there's no reason for you to go at all. I—we're very glad to have you."

None of them, of course, foresaw what was still to come. How could they have foreseen?

It was not until some time later, when the increasing cold prompted them to light a fire in the sitting-room fireplace, that the terrible truth began to dawn on them. Painfully, they finally puzzled it out, from facts that could not be gainsaid. The fire was almost useless. It radiated no heat whatever into the room, and what little air its flames directly warmed was wasted up the chimney. And outside, as they could tell by feeling the panes of the now tightly closed windows, the temperature sank and sank.

In the end they had to move to the kitchen and the oil-stove. That made for an enervating stuffiness, and periodically they had to open the door to let in some fresh air. But at least the air that passed again and again through the burner-tubes was warmed thereby.

About noon the beat of the rain softened to a strange pattering. After listening awhile, Sterling opened a window in the front part of the house in puzzled curiosity—and felt cold snowflakes drifting against his face and hands. Snow, in early summer!

A tiny, temperate oasis in the absolute zero-cold of Space, the Earth was beginning to cool.

Slow was that cooling, by scientific standards. From sixty Fahrenheit, roughly the mean temperature of the day before, to the minus two hundred and seventy-three Centigrade of absolute zero is a long long way to go. On the first full "day" of the Darkness the mercury went down but a few degrees below freezing-point—a very short distance considering how much lower it could still go, but not very far above the limit of that narrow band of temperatures outside which no warm-blooded life can exist.

DURING lunch, with many apologies, strangely out of place, Mrs. Cranshaw voiced a doubt that had been filtering into everybody's mind. Would there be enough food in the house? . . . She then took an inventory. There might be enough to last the five of them, on rations, for two more days.

Fiercely Sterling blamed himself. So this was his leadership—battening on a disabled ex-soldier and his blind wife, eating them out of their own house! He should have tried to make Mercer last night, or even this morning, rain or no rain. It was too late to think of their going there now. He couldn't drag Margery out into that snowstorm, with the temperature dropping every minute. But he could try to get there by himself and bring back food—*if the village had any food to spare.*

"I'll go with you," said Mr. Cranshaw. "There's quite a lot of side roads on the way and you might get mixed up and never get there by yourself."

They started at about two in the afternoon. Already they found the snow muffling their footsteps on the garden path, and the air was like midwinter, with a rising wind. The snowflakes were no longer big and soft and pattering, but small and dry and powdery. The air hurt the throat.

Within twenty minutes they knew they were off the road. The piling snowdrifts gave their feet no guidance. Cranshaw's gassed throat and lungs were already paining him. It was hopeless to attempt to reach the village. It was touch-and-go, Sterling realized with a cold around his heart worse than that on his face, whether they would ever get back to the house.

"We'd better feel our way back by our footprints," he said.

They would have to be quick. Their tracks were already starting to fill.

"My God!" Cranshaw wheezed a little later. "I'm choking!"

Sterling stopped, got his own shortening breath, and gave a long shout. Perhaps Mrs. Cranshaw's super-sensitive ears might hear him. If only she could, and would ring a bell . . . But no answer came. Half dragging Cranshaw, he struggled on, shouting at intervals. Finally he heard the beating of a gong, but by the time he reached the front door, Cranshaw was unconscious.

"I don't think we got more than a mile, if that," Sterling gasped out when the two had been helped inside. "Snow's getting thicker all the time, and the cold's —awful."

By then it was like an Arctic blizzard, and on the inside surface of the window the condensed moisture had become a thick film of ice.

As the clock signaled the slow passage of the hours, a nagging ache of cold began to attack their extremities. There was nothing they could do but wrap themselves in blankets and sit around the oil-stove in the kitchen, drinking hot tea whenever they felt the need of it. Nobody seemed to want to talk. Even Margery's nerves began to tauten.

In the relative warmth of the kitchen, Cranshaw had quickly recovered; but he had become subdued now. The End of the World was getting too close to talk about it.

All night the oil-stove burned on, and all night they sat huddled around it, uncomfortably dozing, miserably waking up, straining their useless eyes for light—light—light—the light they were longing for but which they feared they would never see again.

And the next day, as Sterling had dreaded from the first, poor Rogers cracked.

ALL morning, except for brief excursions into other parts of the

house, none of them had stirred from the kitchen. The hours had crawled intolerably. The cold had stiffened and stiffened, inexorably, like a slowly closing vice. Again no one had felt like talking.

Until late in the "afternoon," Cranshaw suddenly threw off the lethargy that had held him ever since Sterling had dragged him back from sure death. And that was the last straw.

Without warning or preamble, he snatched from the past the mantle of Moses, to confront the Pharaohs of the modern world with wild demands and accusations and even wilder threats. Despots, financiers, and politicians; pharisee-priests of religion, moloch-priests of trade and commerce, jazz-mad spirit of amusement and pastime, sex-obsessed purveyors of mass-produced fiction and films—he arrayed and arraigned them all before him, and stormed at them as if they were really in the room and himself the Mouthpiece of the Lord. Plague by plague he took them through the long-forgotten horrors that had come to ancient Egypt—likening them, with all the unanswerable plausibility of the religiously unhinged, to the visitations of the war and the post-war years. The blood-stained Nile became the waters of a flooded Flanders, shell-churned to mingled mud and blood and flesh. The Murrain and the Plague of Boils were but the prophetic "type" of the post-war scourge that the doctors had labeled "influenza" because they had no idea what it really was. But Cranshaw knew. It was the Hand of an outraged Jehovah . . . And the Locusts? Did not a cloud of them ravage all Africa only a few years ago? And now here was the Darkness, the Ninth Plague. Three days and three nights the Egyptians had sat cowering, each in his own house, as they themselves were sitting now, in a thick blackness that had mantled all the land. But this time it would last three years.

"I have appointed unto you a day for a year!" he shouted. "Will you let my people go?"

He paused, as if expecting the envisioned Pharaohs to answer; then the tirade went sweeping on.

"Then shall the Last Plague follow, one with this. The Firstborn? More than the firstborn—that was but a shadow of the Wrath to come. All flesh! You will not let my people go. My people will not go. They are no longer my people. Divorced, outcast, unworthy, to be purged from the earth they have despoiled! Not by fervent heat, but by freezing cold -cold—cold. The world shall be without form and void, as it was in the Beginning, and Darkness shall cover its winding-sheet of ice—"

It was then that Rogers, snarling like an infuriated animal, sprang at the man.

IN THAT darkness the horror of that melee was intensified a hundredfold. A wild trampling, hands gripping and tearing, feet stamping and twisting, body thudding against body in an unseen tangle of chairs. Crockery crashing and crunching; and, ghastliest of all, the sobbing beast-like mouth-noises of the maddened Rogers, the gasping, truncated denunciations of his victim, and the cries of the two women.

Appalled, Sterling leapt into the midst of it. The stove! Good God, the oil-stove! If they knocked that over . . .

"Stop! . . . Where are you, Alan?—For Heaven's sake, Margery, keep clear!—Damn you, Alan, stop that, or you'll set the place on fire!"

Grimly he felt for him, by the sound of his breathing and the noise of the

fight. At last he found a convulsively writhing leg, was kicked away, crawled doggedly back again, found the two locked together, Rogers on top, throttling the other.

Sterling got his fingers around the airman's throat, braced himself, and dragged him up and back. Continuing to drag him away, he shouted, "Margery! Here he is—I got him! Maybe you can quiet him—"

But Rogers, like the wild beast he had become, broke the grip with a sudden twist of his body and went plunging through the door.

They heard him floundering in the sitting-room, bumping into furniture in his rush to reach the front door. Filled with foreboding fear for him, they groped after him, only to hear the front door open and shut again with a bang a moment later. A blast of air and snow, like fire and ice, smote their faces. Margery rushed to the door, opened it again, and took one stumbling step down into the powdery waist-high drift. It was like stepping into a bath of boiling water.

"Alan! Alan!" she cried out. "Come back!"

The hiss of the sandy snow-crystals, eddying on the moaning blizzard-wind, was her only answer.

No more snow was falling. The cold had squeezed the air dry by now, to the razor-keen dryness of intensest frost.

It was Sterling who pulled Margery back, already drowsy from that awful cold, and tried to take her place. But an instant's thought, even as he plunged down the path, told him how futile it was to try and follow the airman. In that blind dark he had no idea where to look for him. Already his footprints were lost. To stay out there looking for him would only mean his own useless death—leaving two women behind with a religious maniac.

Rogers had made his choice, he had found a way out, with perhaps a hint of redeeming honor, the choice of a man who could no longer live with himself, could not bear the strain of waiting any longer for death . . .

But was that all? Could not the idea have flashed into his mind, in one last moment of blinding sanity, that his going would mean more food for those who remained?

"God rest him," Sterling muttered, and turned back toward the door. Just then, with a strange faintness, he heard the women calling him. "All right," he called back, and plunged vaguely in the direction of their voices. A hand grabbed his arm.

"Get him inside and shut the door, or the whole house'll freeze," he heard Mrs. Cranshaw say. He felt himself drawn in, heard the door slam shut behind him. Dizzily and stumbling clumsily over his feet, which had somehow become two blocks of ice and lead, he spread out his arms to feel the wall. His right hand must have touched it, for he felt the jar of it in his shoulder, but there was no sensation in his fingers. He swayed. He was collapsing, but could not do anything to save himself. He fell against Mrs. Cranshaw. Still dimly conscious, he heard her call to Margery to help her with him.

Sterling's last thought before he fainted away was that Rogers must already be dead, or lying in the brief coma that leads to death, out there in that awful stinging snow. Well, it would not be long before they followed him. The whole world must be dying. Could Cranshaw be right after all, and Margery wrong? Had humanity—failed? Was all life to be frozen off the earth, and the planet to lie fallow until the ageless powers of Nature could create a new and better life?

The whole grim picture went through

his failing brain in one last blaze of lightning-like thought—then the Darkness flowed in on him and engulfed him.

STERLING woke up to such pain as he had never dreamed of before. His whole body seemed to be afire, tortured by a thousand pinchers, shot through with a million needles. If this was the Resurrection . . .

"He's coming to," said a voice—Margery's voice, a sudden gladness in it stepping on the heels of long anxiety.

"Margery," he mumbled thickly; and then, "What happened?"

"Frost-bite or something. You passed right out. We've been rubbing you for over an hour. Thought you'd never . . . come back. Thank God you did . . . But oh! poor Alan . . ."

Sterling tried to console her. "It must have been very quick. Just like falling asleep. It's all over for him now. We still got to face things. Why did you bring me back?"

He was still not much more than half conscious, or he would never have asked such a question. The moment it was out he was ashamed of it.

"Because because we mustn't let go, any of us. We *mustn't!* If we're to die, we'll die. But we mustn't die before we're—called."

"Here's the tea," said Mrs. Cranshaw, practical as always.

He swallowed a mouthful, then asked, "Where's Mr. Cranshaw?"

"Here," came a broken voice. "Would it be any use to ask you to forgive me?"

"Forgive you?"

"I killed him. I drove him to it. I see that now. And it wasn't as if Mary didn't warn me. I'm the same as a murderer." His voice rose, he began hysterically to curse himself. "Damned," he sobbed out at the finish, "that's what I am—damned for all Eternity."

Sterling sank back helplessly, soul-weary of it all. He could not cope with much more of that.

"No," said Margery with quiet earnestness. "God isn't that kind. He doesn't damn us, He sees us through. He'll see us through now, whether we live or die. I think . . . I think we ought to . . ." Her words trailed away into a strange little taut silence. Then, almost in a whisper, uncontrollably trembling, she spoke two hesitating words—and the tension eased.

"Our Father," she began, "Which art . . ."

Crouched there around the burning but invisible stove, in the utter blackness of the little kitchen, the four of them repeated the ancient prayer. Few of its words were really in keeping with their desperate plight, but it was the prayer itself, with its associations, that helped them.

There followed a quiet, filled with a deep and calming peace which none of them dared to break. The Cranshaws sat hand in hand, as if waiting. Sterling lay back in his tight-wrapped blanket, beyond all reach of thought, hardly knowing even that Margery had crept into the roomy chair beside him. She lay with her head down on his chest, spent utterly with reaction. There was no need for her to struggle any more, no need to spend her spirit to help and uphold poor Alan any more—he was in Other hands now. And she wanted to rest. Oh, how she wanted to rest!

Time was not. Their bodies could not have been far from that trance-inertia which is always the herald of death by cold; but they did not sleep. Sterling knew that he was wakeful as never before—waiting, as the Cranshaws waited, as that night all Creation must have waited.

THE clock in the sitting-room struck three. It broke the spell. Margery heard it and stirred.

"Are you awake?" she whispered.

"Yes."

"How long now, I wonder? I can hardly feel anything at all. Just . . . a delicious tiredness."

Instinctively, but very slowly, for his arms and legs would hardly obey him, he got one arm out of the blanket and put it around her shoulders.

"Sleep, then Margery," he murmured, only dimly aware of what he said. "We'll go together."

With a contented little sigh she was still.

He lay and wondered at himself, wondering if he was dreaming. Surely, here in the very presence of death, this couldn't really be?

Margery was whispering again. "I'm sure Alan . . . understands . . . now."

Blindly he stared over her shoulder into the dark. Rogers' words of the first night, before Margery had come in, had come back to him. He had the key to them now. Rogers had understood *then.*

It seemed that this Darkness had the power to clear that other darkness that was in men's minds. All, apparently, for nothing. But the thought had little or no poignancy now. That death should be universal somehow made it seem less tragic. It is those who are left behind who feel death's tragedy. Now no one was to remain behind. All the world was going on the same journey.

Margery was very still now. Had she gone already? The thought swept away his dim philosophy like cloud-wrack. Margery! Dead?

His arm tightened about her as if to drag her back, hold her back.

She stirred. She raised her head a little. Her lips lightly touched his cheek, then found his own.

Good-bye.

He himself must be getting near the end, for he was beginning to see visions. A little halo of faintest purple, hovering just over Margery's head. For a long time he watched it, convinced that when it sank down onto her, into her, she would die. It had come to take her. With all the vital power that was left to him he willed it not to move.

It obeyed. Presently he realized that it was brightening gradually to a dim and ghostly green. Around it the vague outline of some sort of framing began to appear. Near it, like some occult symbol, was a clouded apparition like a hand, hanging loosely downward. After a while he could make out the thumb and fingers. What did it mean?

A golden glow had begun to flicker about the brightening green halo-ring. Sterling shut his eyes, held them shut for a whole minute, then opened them again.

"Margery! *Margery!*"

"Is it . . . time?" she answered in a sleep-drugged murmur.

"Light! Margery—*Light!*"

For the halo was one of the oil-stove circular burners, and its framing was the mica-windowed door. And the hand was the left hand of Mr. Cranshaw, hanging down loosely from the arm of his chair.

At the sound of Sterling's shout, it clenched convulsively, then lifted to the chair-arm and gripped it as its owner bent forward, blinking amazedly at the returning light.

At last, from the heavily frosted window, they looked out on a world of dawning gray, and, after an age of waiting, the Sun rose, bright and clear and *warm,* over a limitless waste of snow.

THE END

LUVIUM, The Invincible City

By A. R. McKENZIE

"*EIN . . .*"

"Steady!" Gregg Nason whispered to himself. "Let's show these Nazi goons how to die."

Eight rifles beaded him. A bullet-riddled wall was at his back. Bloody sands were under his feet. A Nazi officer stood beside the firing squad, right hand upflung. At the count of "Drei," that hand would fall. Eight rifles would bark; eight bullets would rip through the foul air of the torch-lit, sub-desert chamber and—

"Steady!" Gregg Nason whispered. "This is it!"

Other pilots had flown this path to oblivion. The blood-soaked sands made that clear. Others—like Nason—on reconnaissance far south over that flaming hell called the Libyan Desert hunting a rumored secret Nazi base, must, also, have swooped low to inspect heat-blurred dots on that wasteland. They, too, might have spotted Junker transports unloading, only to—

"Crash!" Nason muttered. "Like me. Not another plane in the sky; not a single ack-ack battery in action. Yet s o m e t h i n g shot us down. Something . . ."

Some of those pilots, too, must have survived to be dragged down endless steps and along brick-shored tunnels to this musty, buried chamber. There—like Nason—wrists had been knotted behind backs. S h o u l d e r s had been

Gregg Nason leaped off the Taumb car, sword drawn, ready to meet the worst.

Gregg Nason went into the invincible city of Luvium under Sahara's sands and found its invincibility was really a weakness!

braced against the scarred wall. Men had stared, as Gregg Nason was staring now, into rifle snouts. Then—

"Zwei!"

Nason fisted his hands. The leveled rifles, the upraised arm seemed to weave ominously beneath the flickering light of an oil flare—a flare propped on a sand bank near one of the room's three low-arched exits. Muffled sounds came through those doorways—metallic clinks, motor hums, feet grinding through sand-crusted tunnels.

Why this secret buried base? Why this concentration of men? What possible objective could be reached from here? The Libyan's fringes were bad enough; its interior was unfiltered hell.

Yet here—trackless miles from nowhere—the Nazis were grouping.

Why? Gregg Nason, now, would never know. There could be no reprieve. Only the Nazis—and the dead—knew of this subterranean hideout.

The officer sucked in a breath. The eight riflemen went rigid. Nason's heart stopped. Long tension-packed seconds passed in which even the doorside torch seemed to freeze in horror.

Then, the hand swept downward.

"Dr—"

The light snuffed out. Seering fires burned across Nason's scalp. He slammed backward, hit the wall and crumpled, his mind a turmoil of flaming rifles, thunderous reports and gurgling screams.

"I *heard* it!" Nason gasped bewilderedly. "Heard the *volley* that—"

His body was swept from the sand. A bulky object crashed into his stomach, doubling him up like an emptying meal sack. With head and feet dangling, he felt himself being bounced through quivering darkness.

"Death, riding a horse. Apocalypse . . ." His last coherent thought.

Thereafter, all was a jumble of pounding feet, brick tunnels, dank odors and laddered bores drilled to impossible depths. Sometimes, he, himself, seemed to be running, hands free. Death, itself, sped behind him. A pallid-skinned, glitter-eyed monster—its human form fast lathering beneath an eerie sleeveless toga upon which crimson stones shimmered like hateful eyes. A phantom that clutched a bloody flat sword and howled curses as it goaded its victim deeper into Earth's bowels.

Twice, they seemed to be in cities. One was a ruin, sand-choked, time-crumpled; the other, a magnificent pile of solemn stately edifices, fantastic hieroglyphics and cleared streets along which walked only the unseen dead.

Then, amazingly, they left all that and went scrambling through dust-smeared mine passages, wormed through rock cracks and trailed twisting fissures for what seemed all eternity.

Running—always. Fleeing, it seemed, an unnamed horror. Turning once, trying to pierce the murk behind, Gregg Nason's legs tangled. He sprawled full length. Death tripped heavily across him. And the last Nason saw was the phantom bladesman, lunging toward him, great hands outstretched, claw-fashion.

THERE was a crash—a grating click. Something sizzling hot bounced off Gregg Nason's skull. His eyes swept open. A spent rifle shell was ricocheting from a stalagmite finger rising from the dank floor beside him.

He lay in a cavern on clammy granite, gasping in stagnant, smoke-stained air. Something lumpish soft was under his head. Nason sat up and recoiled. A Nazi soldier, in full battle gear, had been his pillow. A dead Nazi.

The rifle spat again. Another man—huge, white-skinned and wearing a dusty toga—was sprawled on his belly,

glaring down rifle sights into a breech in the cavern's wall. A distant pain-shriek wafted from that slit.

"Got him!" the rifleman grunted. He spat, crossed one point-toed sandal carelessly over the other. Both soles were oil-coated. He glanced over a brawny shoulder. Annoyed grey eyes caught Nason's.

"About time you snapped out of it. How you feel?"

"Feel—feel—"

"Pull out, dammit. I've been holding off half the German army, the other end of this fissure, just waiting on you." The man scowled. "I'm no pack horse."

"This," Gregg Nason said slowly, "is a helluva dream."

"Dream, eh! You felt your head yet?"

Nason felt. A long shallow gash lay where the hair's part-line should have been. And it stung! Nason gasped.

"What—how—"

"You were facing the firing squad. I jumped from a doorway, stamped out the torch and took a couple swipes with ol' Betsy here." He slapped his side. A transparent scabbard, hooked to a broad, pocketed belt, revealed a crimson-stained sword. "Me'n the dark must have rattled those Jerries. That bullet crease is all you got. I grabbed you on the run—and made *you* run until that guy . . ." He pointed at the crumpled Nazi " . . . tried to stop us down here in the caves."

"Now wait—"

"Can't. The quicker you get this, the better. We're in a jam. We—watch it!" The stranger snapped a shot down the fissure and leaped erect. "They're rushing us. "C'mon."

HE yanked the befuddled Nason to his feet and hustled him across the cavern into a narrow fault A foggy blue light hung around them. It had no apparent origin. Guiding the way through the winding crevice, the rifleman slapped a bulge at his belt.

"Energo-flash. A Luvium product. You remember your plane crash?"

"Guess so," Nason gasped, stumbling on.

"My rifle brought you down."

"What!"

"Don't ask questions. Just listen. It was a Luvium rifle. Radium powered. Those Reichateers stole it—and my helmet. That was weeks ago. I'd climbed up to Zandu to look at the sun and—"

"Zandu?"

"Dammit, let me talk! You recall what happened after you crashed?"

"Sure. They dragged me down steps to tunnels beneath the desert."

"That was Zandu. A city of the past—its peoples dead and forgotten before our history began. Me'n a tough little archaeologist found it years ago. We cleared a few tunnels before we discovered richer game beneath it. Another city, centuries older. Remember climbing down those laddered bores and reaching those stately buildings with the cleared streets?"

"Vaguely."

"That was Thista. Likewise deserted—dead. It's locked in rock, three-hundred feet below Zandu. The way we figured it, Zanduian archaeologists drilled those bores and had fun rebuilding Thista before they, too, were swallowed up by time. We're far under Thista now, deep in the rock. Headed for—"

A hoarse shout echoed from the darkness behind. A pistol flared. Somewhere, a bullet sang off rock. Turning, Nason saw, far back, flashlights dancing from slimy stalactites.

"Faster!"

"But where—what—?"

A hard chuckle sounded. "Everybody has forgotten. Everybody but

those devils. Jack Wright. Luvium. Those names mean nothing." As the stranger ran he dug a sheet from a belt pocket. "Words wouldn't convince you. But a picture might. Look."

The sheet was tissue-thin, brassy to touch. It was a picture of huge white men, wearing purple togas shimmering with red gems. Dark eyes glinted from beneath rims of bell-shaped helmets. The men were gripping swords and shouting blood-chilling battle cries as they surged forward upon a horse-shaped platform high above the terraced flooring of a tank-like structure.

Men shouting; men surging! In a picture Nason held in his hands.

"I'm dreaming!"

He combed a hand through his sandy hair. And winced as he felt the wound. His flying rig hung in shreds, revealing a hefty brown arm mottled with ugly bruises. A dream? Still running, Nason gaped at the picture. It moved, had depth. Sounds welled from it—and the bewitching scent of jasmine.

"That's Luvium." The stranger was holding stride. "A living nation imprisoned in rock beneath a gigantic pressure-resisting dome. Once a surface race that built against an ice age —that whipped life-sustaining elements from the rock beneath it as Earth's crust folded above.

"That's Luvium. Today, it's a city of fighting fools with a command of the sciences we won't understand for centuries. *That's* a picture of its subway —the Taumb. A mine station."

NASON looked at a *new* scene in the same frame as through a window upon not one, but dozens of crowded platforms, shaped like immense croquet wickets with open ends backed against a circular wall. Imposing chair-cars, many coupled as trains and all suspended from an endless, overhead rail, were zipping from wall openings around inside the platforms to come to jolting stops at segregated landings.

Men, in vivid-colored togas were vaulting from those carriers. Women, too, wrapped in flowing gowns of solid, sombre color with hair banked high and with full lips gleaming like fresh blood against the salt-white of their skins.

Men and women, tumbling from carriers, swarming down ramps to a concourse, dotted with strange booths to jam around the platform on which the nearest warriors, upwards of fifty, were charging.

"A dream!" Nason panted as he lurched on.

"It's history," his guide said. "Watch that Taumb train now arriving."

"Dream!" Nason repeated doggedly as he saw in the picture a four-chair train grind to a halt.

A man sprang to the platform, howling a sing-song gibberish. The fifty grim warriors flung the speaker aside and charged toward another of the train's occupants—a grey-eyed giant—who had vaulted out, snatched a sword and whirled to meet the attack. That man was—

"Me!" the rifleman at Nason's side said. "Jack Wright. Known down-under as Adu, The Stranger." Running easily, he plucked the picture from Nason's hands. "She carries on five minutes, then repeats. A Luvium product . . . That howling devil led me into an ambush. I escaped to kick the teeth out of Luvium's mad king . . . We're here!" *

* The first story of this series, "Luvium," was published in *Amazing Stories* in November, 1931, where it attained great success. Even today readers have asked for a sequel. A second story of the series, "Luvium Under the Sand," was published in our June, 1936 issue. This also was popular.

This present story was written for us specially by Mr. McKenzie, to satisfy the demand for more stories of this series.—Ed.

His finger stabbed ahead to the beginning of a twisty, metal-sheathed passage.

"There's a door at the other end. It'll be open. The fight'nest hellions in two civilizations will be waiting. They'll chop these Nazi dogs to ribbons."

He flung his rifle aside. Nason stared.

"What in—"

Again, Jack Wright pointed.

"Energized walls. Force fields tuned to detonate explosives. No one can—"

They broke from the rock into the metal-lined pass. There was a spurt of flame; a thunder clap, and the sound of a bullet clanging from a wall. Nason gaped foolishly at a ripped and smoking pants pocket.

"Carrying a lucky bullet . . . it—God! this thing is no dream! It's real. My leg's burned."

"Now," Jack Wright chuckled, "you're getting clever. Step on it." They stumbled through a dozen hairpin curves. "The door!"

Fagged and blowing, Nason saw a silvery barrier blocking the lane. It was closed. No brawny swordsman waited them.

Wright stopped abruptly, scowling.

"Something's wrong. They should be here."

THERE was a howl from behind. The man whirled, yanked out his sword. The first of the pursuing Nazis —burly, snarl-eyed — plunged around the turn. He carried a bayonet, sword-style. He lunged, wordless. Wright side-stepped with withering speed, pivoted and flicked his weapon straight at that brown throat. Gurgling, the huge soldier reeled backward and fell just as the main body, bristling with bayonets, galloped around the curve. Men tripped, tumbled in a cursing pile. Wright stood, balanced on the balls of his feet slashing and cutting with machine precision each man who leaped up and came at him.

"Determined cusses," he said calmly.

Back of that tangle of bodies, Gregg Nason glimpsed a thin face. A face with a forked lightning scar across a brown cheek. Acid-eyes touched Nason's. The Nazi's gaunt body stiffened.

"Herman von Block!"

Wright, his blade flowing smoothly, shot back,

"Who?"

"Von Block!" Nason wheezed. "The dirtiest goon in the whole gestapo."

"Quit blabbing. Grab yourself a bayonet and—hey!"

Wright, too, was glaring over the pile. Nason looked. The scarred Nazi wore a gem crusted toga. A broad belt was at his waist; a bell-shaped helmet on his head. And strapped to his lean shoulder was a red-barreled, light-weight rifle.

"My rifle!" Wright cried. "And my helmet. That rifle's the baby that shot you down . . . Dammit, where are those tentav guards!"

Nason glanced back. The silvery barrier stood firm—was suddenly six feet nearer as the Nazis massed and charged. He snatched a bayonet.

"Could be a tomb," Nason thought. "Ancient Egyptian or—"

Steel sparked almost in his eyes. Wright had twisted to hammer aside an avalanche of points all hissing for Nason's unguarded chest.

"Dammit, watch yourself!"

A series of harsh clicks sounded over the din. Wright's eyes flamed.

"That's it! They're snapping the locks. Men of Luvium."

The barrier crashed back. Wright, with blinding sweeps of his dripping weapon, swept a space clear. A sing-song speech poured from his sweat-flecked lips. Nason glanced back and

his heart took a mighty surge.

Eight men, in purple togas, were jamming into the opening. Huge men, with skins cream white, with bell helmets yanked low over piercing eyes. Powerful hands were already tearing blades from glassy scabbards.

As one the eight leveled their metal and charged.

"Heil Hitler!" the leader howled and stabbed viciously at Jack Wright's unprotected back.

"That," Gregg Nason s n a r l e d, "I could have guessed. Luvium, eh? A buried city of fantastic sciences? In your screwy head, Mr. Wright! These fighting sons of your brain-storm empire are Nazis, born and bred in the land of the Greater Third Reich. It's the pinchers, guy . . . but good!"

CHAPTER II

JACK WRIGHT, hearing, whirled, slipped the jab and ran the backstabber through.

"One chance!" he hissed, vaulting the crumpling body and rushing the remaining seven while the main force surged in from b e h i n d. "That's a plunge. Let's go."

With one powerhouse sweep, he hammered down the seven menacing blades, hunched his shoulders and bucked the line like a fullback. Nason, with a recklessness born of fatigue, kept pace. With fists and hips, he opened a hole. An instant of snarls and t h u d d i n g bodies, then he was through past the doorway and reeling down a marble-walled pass dimly-lit by multi-colored bulbs set flush in a low ceiling. The air was cool, tinglingly fresh. A hard hand closed on his elbow just as he was falling.

"Stick with it, Stumble-hoof." Jack Wright glanced behind at the piled bodies, then pointed his sword upward. "See those lights? They're treated bits of radium. Their Beta rays trap all unusual sight and sound. Magnetic energy speeds the impulses to sensitive Tentavs. Luviumians, schooled for ages against invasion by God knows how many of its sister cities s c a t t e r e d throughout the rock, watch those delicate Tentavs and jump at the slightest quiver. But those weren't men of Luvium!"

Gregg Nason fought his dragging feet.

"Now he tells me! And L u v i u m isn't—"

"Luvium *is*. We're under its energized shield. Get smart, fellow. These are Luvium's marble mines—outposts, buffers against attack. They rim the city proper. Hundreds of them; ores of all kinds. Each choked with sentinel stations; each a unit in itself, covering five square miles. The Nazis, obviously, grabbed this one. We turn . . ."

They darted to the right into a shadowy bore, ran hard, then swung left into one even darker.

"No lights—no watchers," Wright explained.

The strata was honeycombed with tunnels. Ornate grill-screens showed in the walls.

"Air vents," Wright added. "Fresh air feeds and stale air returns. Watch it!"

One vent was open. Nason staggered around it. Confusion r e i g n e d about them. Shouts echoed in every pass. The men they g l i m p s e d were huge. Skins were cream-color. But all were Nazis.

"Handpicked," Wright d e c i d e d. "Skins bleached."

"And where," N a s o n managed to gasp, "are we going?"

"Out of this mine. Fast." Wright nibbled his lip. "Luvium's tough, hard.

The current Dedul—King—isn't liked. He's a scientist, remains aloof, figuring lives by equations, loves by graph. As usual, a revolt's brewing. I'm mixed up in it. Deep." He frowned. "The Dedul's crowd suspect me. If I blow in without that helmet and rifle, they'll think the worst. A man's full identification is stamped inside his helmet. There's stiff penalties for any alteration or loss. The Dedul's gang might seize that chance to throw me into the brig. What we better do is to sneak into the main city and contact the revolutionists."

"But these Nazis!"

"What about them?"

"They aren't in Zandu for a rest cure. And if there *is* a city—"

"—they'll attack?" Wright snorted. "Son, this is a nation of millions. With weapons and defenses that strain imagination. A handful of surface men with bayonets couldn't capture a Taumb station. This mine is nothing. Let 'em fool around with it. After we've thrown the present Dedul out of office, we'll push a squad of recruits in here to mop up."

IT WAS like a dash of water. Nason's mind leveled out, c a u g h t at cold facts. Radium rifles, an energized wall and a buried nation, far advanced. If the paper hanger's c r o w d grabbed this—

"Forget that damn revolution," Nason said hoarsely. "Contact this king of yours pronto. Get your gang organized; build a solid front. Brother, these goons go in for this divide-and-conquer stuff. France—"

"Oh, quiet! This is Luvium. To its peoples, there is no surface. And they can prove it! If we rush in, yelling such junk, we'll be in the salt mines two whoops and a holler later. Calm down. Get set to enjoy yourself. Visiting Luvium'll be like a trip ahead in a time machine. Some morning before breakfast—if it'll make you happy—we'll steam roller these Nazis right into the floor."

"That," Gregg Nason said hollowly, "is what we said about the Nip Navy."

"The surface isn't Luvium. You'll see. Step on it!"

They streaked up ramps, skirted wells, hugging always the dark. They slid down a chute and raced alongside a fantastic pile of metals, gears and dials.

"A silver drill," Wright said. "We're out of Zemd's mines. Way out. Watch it!"

Nason, going hard, felt something slam against his shins. Clutching hands caught at his pants. He somersaulted free of both p a n t s and hands, and banged his creased head on one of the machine's grabirons. The world started spinning. Nason tried to get up. His knees wouldn't answer. So he sat, gulping air. The plane crash, his wound, the insane run—he was feeling that now.

Two figures were writhing beside him. Wright and a h u l k i n g white-skinned stranger. Both were howling a musical gibberish. Wright's fist suddenly swept free and crashed down. The stranger's head snapped back. A small, whitish o b j e c t flew from his mouth. Wright got to his feet.

"A Nazi," he gasped. "But he was talking straight Luvish. What in—" He snatched up the white object. "False teeth—no! They're shells! Look."

Nason rose like a tired old man. He held desperately to the grabiron. He saw two sets of white shells, expertly shaped to seat over both the upper and lower teeth. A ball-like offset hinge, well behind the molars, tied the plates together, while a continuous transparent membrane had been cemented across the outside surfaces of both sets.

Nason said t h i c k l y, "It's still wrapped in cellophane."

Wright pulled the two sections apart, simulating an opening mouth. As the teeth parted, the rubberish membrane stretched, forming, in substance, an invisible barrier to anything the wearer of the shells might wish to put into his mouth.

Scowling, Wright ripped the helmet from the unconscious German and dug two tiny cone-like objects from each ear. He rose.

"Try these on for size."

"Huh?"

"Put these cones in your ears and these shells over your teeth."

Nason blinked. "Wait a minute. This guy maybe had measles."

"Get smart. This is Luvium. The filtered atmosphere hasn't known pathogenic bacteria for ages. Dammit, slap these shells in your mouth and the cones in your ears."

GRUMBLING, Nason complied. The shells fit loosely; the ear cones were too tight. He exhaled and his breath went right through the membrane. He cocked his head but the sounds of the searching parties were not one bit louder.

"They're fakes. The membrane leaks and the cones don't amplify."

"But you don't have any trouble hearing me, do you?"

"Nope. What the hell's eating you?"

"You," Wright said, "are talking Luvish almost like a native."

"What!"

"And I am now speaking in the same tongue."

Nason backed a shaky step. "One of us is nuts!"

"Listen!" Wright gave voice to a series of disconnected squawks and hisses. "That was English . . . I've been gone weeks. These speech converters were in the blueprint stage when I left. Which shows you how fast things move with a scientist for Dedul. They were devised for use on alien-born prisoners. God only knows how these reichateers got hold of them."

"This," Gregg Nason said, desperately, "I will *not* believe. Speech converters. Converting languages your greenhouse gorillas never heard! Oh no, brother."

"It's intricate. The r e c a s t i n g of audible vibrations depends entirely on magnetic thought impulses."

"I," Gregg Nason said, "am so damn tired I can't even spit."

"And naked!" Wright glanced at the unconscious Nazi. "That outfit should fit you." He stripped the man and, as Nason slipped wearily into the toga, he cried, "Hey, look!"

He was pulling a blueprint from the Nazi's helmet. It was a complicated plan and the key was German.

"Considerate of them," Wright said. "Can you read it?"

"I can if I don't fall over," Nason said. "I'm pooped, I tell you."

"Read it and we'll rest."

"It says: Water System, Primary Lines. Red 'X' denotes conduits to be severed immediately following diversion attack through lower mines. Heil Hitler!"

Wright bent. "That's a drawing of Luvium's water system. Main conduits. Are they crazy! What'll they gain, cutting mains? All we've got to do is stop the pumps. Only the lower mines would be flooded."

Nason looked closer. "There's something else scribbled down here. To a General Somebody. It says: 'Our diversion attack through lower mines should draw bulk of defense forces to the scene. Ninety percent casualties by drowning is estimated.'"

A gasp brought Nason's head up slug-

gishly. Wright had slipped on the helmet. His grey eyes, beneath the brim, were distant and hard.

"Let's move," he said.

"How about resting?"

"No time. Got to get through. To the Dedul's council chambers. This way."

"But—"

"Shut up. I'll do the worrying."

THE dumbfounded Nason stumbled in his wake. He couldn't figure it. All of a sudden, he couldn't think two consecutive thoughts and make sense. He cursed his dangling sword; cursed the lights when they reached them; cursed his changeable companion and didn't even wonder why. He was too far gone even to feel dismay when he heard a shout and saw a squad of clear-featured warriors—definitely not Nazis—swoop from a main passage and come charging toward them.

Jack Wright stopped, stiff as marble. On came the hooting soldiers. Weapons were ripped from the two. Sandwiched between men, they were marched in silence down one passage after another. A long murderous climb up a ramp put them upon a brilliantly lighted avenue. They passed groups of soldiery who immediately burst into tense excited whisperings.

Traffic thickened; the avenue widened. Copperish tubes and colored cables sprang up along the metal walls. Air screens, both stale and fresh, grew larger and more complex. At intersections, seated wall pictures, moving through set patterns, detailed the types of and passages to the various mines within the area.

A sharp turn brought the squad into a circular chamber. A door slid behind them. Promptly, other doors popped open as a warrior manipulated a typewriter-like wall control, revealing a line of one-man cells. A tiny tubular machine began belching sheet after sheet of the energized pictures. On beyond, dozens of queer, piano-like instruments were unfolding from the floor. With worried frowns, the warriors scurried away to mount stools before them and begin a nervous playing of ball-tipped rods, protruding from a slanting keyboard, watching intently a small screen upon which three-dimensional pictures of weird structures flashed on and off.

"Tentavs," Wright said unexpectedly. "They're the machines that receive and translate the vibrations which the wired radium lights pick up. These are Luvium's robot sentinels. They catch the first whisper of invasion—the slightest scratch upon the outer energized shell. They, also, register all commotion inside the mines within their set range. Accidents, mine breaks, mutiny, reb—"

The commander at his desk suddenly looked up and snapped his fingers.

"Emergency," he barked at an overhead light. "Severe vibrations destroyed the hair-line balance of bank-3 Tentavs. Repair necessary. Cut us off circuit."

All lights flickered. Promptly, men swarmed from their machines and out of cells, and poured toward the prisoners. The commander gasped quickly at Wright.

"Latvu, The Cheerful, was here. Signed us up one-hundred percent for the revolution. He's looking for you. You're picked to head a diversion force from inside the palace. The Dedul's crowd is running itself ragged trying to find you." He glanced skittishly at the light. "We'll hide you out. We'll say you gave us the slip. When the heat's off—"

"I," said Wright sternly, "have lost a radium rifle."

"Rifle!" the commander stared. "So what? I'm talking about the revolt.

You're needed. Bad. Latvu, The Cheerful—"

Gregg Nason swayed drunkenly. Dogtired, he heard, but understood little—and cared less.

"Pooped," he muttered.

Wright was saying, "Revolt is treason."

THE COMMANDER gasped, then dragged Nason hurredly aside.

"What in the name of rock is the matter with you Adu?"

"Who's Adu?"

"Adu, The Stranger. The Alien-born. Your friend here. What's happened? You guys didn't" the man asked in sudden horror—"come too close to a pitchblende mine? Your skin is burned and—" He s h o o k Nason roughly. "Come out of it, will you?"

"The Nazis," Nason said numbly. "We found a diagram. All about an attack on water mains. Wright thought first it was hooey. Then, he was all for making a beeline for some council chamber." A bit of his mental fog lifted. "Maybe what I said finally sunk in. That it's smart to present a solid front."

"This," the commander protested, "doesn't make sense. What, in the name of shale, are Nazis and hooeys and beelines?"

Nason pointed at his mouth. "I'm from the surface. I'm talking my language through something Wright called a converter. Nazis are stinkers who've been trying to conquer my country. They're down here to take over your diggings as an arsenal. Bees are domestic insects that fly around in a hurry, sucking honey out of flowers.

"And you," Nason added, "better lay off this idea of revolution. This business of internal dissension did a lot of damage upstairs. Japan gave us a helluva kick in the pants while we were yapping among ourselves about lend-lease and post war debts and whether or not we should keep on being isolationists with our heads buried in the sand."

The commander straightened wearily. "Pitchblende radiations. You both got too close." He flipped a desk switch. A cubical contraption of metal and transparent plastics l e a p e d from the floor. "This," he said, "is what we're fighting. The new Voltav. Adu, listen. It happened while you were gone."

"I," Wright said, "lost a radium rifle."

"I know," the commander said desperately. "But listen: you've got to understand. Things have changed. The Dedul now rules by proxy. He dreamed up a bunch of these comptometer-type Voltav machines and installed them, as here, in every locale where justice is dispensed. All are keyed, wired and tuned to a master box in the Supreme Council Chambers of First Nobles. That's what we're fighting, Adu. These hellish judicial Voltav boxes."

"Sock 'em with a sledge hammer," Nason said, his weariness once more stealing back upon him.

"Stupid. Ones like this mean nothing. It's the master box we've got to get; the one in the council chamber."

"Sabotage—"

"We tried that. Our best scientists couldn't even dent it. We've got to storm the palace, grab the Dedul and make him—"

A GONG clanged. Warriors glanced at the light, then questioningly at their leader. That man said hastily:

"They're cutting us back on the palace circuit. Adu, think! All Luvium crime is now judged by concise, precharted formula. Position, rank, past performances – they mean nothing. Every human factor –mistake, confusion, necessity and the like—is excluded. A machine, not a man, would try

you. Lost identification, lost rifle, even this insane yarn of attacking beelines—"

"Nashees," Nason corrected weakly. The room was beginning to pitch.

"—Nashees attacking our water mains would mean the salt mines, without even considering the fact that you have been linked with a revolt."

Again, the gong clanged. Sharply. The commander ripped out an order. His men scattered to cells and tentavs. In second's time, business was as usual —tentavs flashing, men playing knobular controls and talking back to the screens. The commander glared at an overhead.

"Repairs completed," he said briskly.

He turned to the Voltav and twisted a control. There was a hum. A purple light flicked beneath a scanning disk.

"Prepare for trial," said a smooth voice.

"These prisoners," the commander said officiously, "were found in an exhausted state, wandering about the mines of Louma, noble of 12th rank, warrior class. Being under great physical strain—"

The voice came instantly from the machine. "Reject! Physical qualities have no bearing. Restate case correctly."

"These prisoners—"

"Reject! Case faultily presented. Restate, giving name, vibration quota, mental frequency, and all other cataloged identification."

Jack Wright stepped forward suddenly.

"Adu The Stranger," the big man said. "Vibration: six-point-two; mental frequency: two-seven-point-four; phrenograph: three-eight-one. Charges: loss of one radium rifle; loss of identification; suspicion of participating in—"

Once more the voice interrupted, "Reject! Crimes charged beyond this court's jurisdiction. Order immediate removal under guard to hearing before Supreme Council of First Nobles. Trial finished."

Something nudged Nason's back. He brushed it away. It butted his spine again, insistently. He looked over his shoulder. A warrior held a slender black tube low against his spine. Another armed Luviumian stood behind the frosty-faced Wright.

"March!" was the command.

"That," Nason said hollowly, "is the last straw."

His knees buckled. The floor reared up, smashed him in the face and soothing darkness fell.

CHAPTER III

GREGG NASON woke with the rush of a spicy wind against his face. He was strapped upright in a chair-like structure suspended from an overhead rail. The broad, padded straps kept him from catapulting over the front, back and sides as his chair leaped crazily hither and yon through complicated switches, criss-crossing the ceiling of an immense bore. Other chairs, singularly and in short trains, were darting as insanely about him.

At every switch, every junction, collisions seemed certain. Yet each time, one vehicle or the other would drag in with a stomach-curling lurch, allowing safe passage for both.

"Automatic controls," Nason muttered. "Power taken off the rails."

His chair headed a four-chair train. A Luviumian warrior sat behind him. radium rifle over his shoulder, but pointing a black slender rod at his head. Jack Wright was in the next chair—a guard behind him.

The train lunged upward. The tube was suddenly of transparent plastics. Nason gaped down.

"Fairyland!" he gasped.

He was looking upon a city of diamond-shaped buildings, vaguely hinting of ancient Rome, yet garnished with elaborate cornices, jeweled towers and queerly rippled roofs. He saw streets swarming with people—streets which themselves moved as did many of the smaller buildings. Lights of dreamy pastels washed the scene, yet when Nason peered upward, seeking the shield Wright had mentioned, he saw only a grey heaven untouched by any ray.

At once, the tube was solid. The chairs took a downward swoop; a lurch to the left. Passing trains blurred. An instant of darkness, then an explosive leap into a tank-like structure so huge Nason almost cringed.

"A Taumb station," he said awefully, remembering Wright's picture.

The train spun around a wicket, braked with a jolt. Waiting guards unclinched strap buckles and swept the four to a silver-cased section of the platform. There were hundreds of other platforms; thousands of cars, leaping into and away from each platform at impossible speeds. Uncountable gems of every hue reflected from chrome walls. Luvium citizenry—the women in rich velvety gowns; the men in wildly contrasting togas—were moving starchily up and down waxy ramps, and milling about the terraced concourse below.

The prisoners were hustled down a bar-protected ramp, on through the station's heart and up the spongy terraces toward the station's pedestrian exit. The traffic split into long queues, each line dribbling past a hut where gatemen were busy scrutinizing passes. Nason's attendant produced a metal disk.

"Approved," the gateman said. "Check your rifle."

"What?"

"Check your rifle. New law. No radium rifles allowed in palace."

GRUMBLING, Nason's escort surrendered his piece, but retained the black rod. A gate slid aside. They pushed into traffic and approached the arched exit. Tiny, colored light beams were criss-crossing the area. Wright stopped suddenly.

"What's this?"

"Another new wrinkle," his watcher growled. "Calibrated beams to check individual body frequencies. All palace entrances got 'em now. Let's go."

Nason stepped gingerly into the gasmic barrier. A voice promptly blared:

"Reject! Frequencies not on rifle. Guard!"

Twenty armed huskies swept the quartet into a side chamber. Nason's watchdog explained the situation into a Voltav.

"Accepted," it grated. "Pass the prisoners."

Inside, they went swiftly along gem-crusted corridors. Directional life pictures buzzed at room entrances. Giant warriors walked rigid beats. Immaculately trapped nobles stalked about.

"Nice little dance hall," Nason said to Wright, then, watching his chance, he slipped the membranous converter from his mouth. "Spill it," he grunted. "What's on the fire?"

Wright strode on as if he had not heard.

A huge hundred-man elevator whisked the party high up in the building. Sliding chair-equipped floors of staggered speeds carried them deep into its heart. They approached another beam-guarded entrance. Both armed warriors pecked nervously at their togas. All walked into the light fence and a voice bellowed:

"Reject! Prisoners' appearance abominable. Correct."

Again, waiting guards swarmed upon them. This time they were hustled down a corridor to a room in which dignitaries of all rank were adjusting minor details of body and toga with the aid of complex machines. Rough hands ripped Nason's outfit from him. He was thrust into a circular bin. Heated liquids promptly sprayed from hidden jets. Gummy white paste followed to coat his body. Sharp, churning air blasts whipped the paste to tingling lathers. More liquid cascaded to dissolve the suds. A blast of icy water shocked a roar of protest from his lips. Blowers quickly dried him. An attendant glided in to smear a piny green paste across his face. A brisk rub and his whiskers were gone. A plain, but crispy-clean yellow toga with belt attached was tossed upon him. He refused a helmet.

Nason emerged, tingling and fresh as butter to see Jack Wright, still in his stolen helmet but wearing a new grass-green outfit, waiting in a knot of stoic-faced guards.

"Wow!" Nason said. "What a washroom!"

Wright scowled. "Shut up. Straighten your toga. We are to appear before the Dedul's council."

"You," Nason protested, "are getting me sore. These Nazis—"

A black rod jabbed his back. Another guard held the odd weapon. A giant among giants, chisel-jawed and hard-eyed.

"Move!"

GROWLING, Nason marched through another door into a long, winding pass. A deserted lane, barren of ornamentation. Even the grill-screens from which the scented breezes wafted were cruelly plain. Wright led the way in long stiff strides, ignoring his guard. Nason trailed. The rod kept cracking against his spine.

"Faster!" his convoy ordered. "Back with your shoulders. Tighten your lips. Fix your belt and—"

Command after command ripped out in a cold monotone which kept getting lower and lower until it became almost inaudible.

"Toes in. Starch up that stride. Fist your hands. What in the name of rock is the matter with Adu?"

Nason gasped, but the rod cracked his back viciously. The voice lifted in simulated anger.

"Quiet. Hold stride. Head up and—" Down went the voice again. "Don't make a sign. They're watching through the lights. Just listen. I'm Latvu, the Cheerful. Wright's best friend. What goes?"

Nason explained, guardedly. Wright in Zandu, the lost helmet and rifle, the Nazis the attack on the water mains and lastly Wright's abrupt change.

"Suck in your belly!" Latvu, The Cheerful, rasped; then softer: "Where did this change take place?"

"Beside the silver drill. The map had a penciled notation. Something like ninety percent casualties by drowning. I read it; heard Wright gasp. I looked up and his eyes under his helmet were —"

"You said he lost his helmet!"

"He did. But he put on this Nazi's—this—*helmet!*" Nason yelped. "Lord, that's it!"

"Quiet."

"Quiet, hell! It's that helmet." Nason lunged forward. Wright's custodian whirled. His black rod lifted, humming. A shock quivered Nason's body. His muscles began to cord unbidden. He stumbled, but slammed his knotted fist against that white jaw. The guard crumpled. The hum cut off. Nason's muscles stopped twitching. He swung again with his open palm. Wright's helmet went clattering across the passage

against a fresh-air screen. Wright's breath came in one agonized gasp.

"Half-wit!" he roared. "I tried to tell you but the impulses they were waving into my skull through that crazy hat were too much. Latvu—"

A shout went up from behind them; another from in front. Warriors came bowling around both curves, bristling with black rods.

"That does it!" Latvu said. "Our vibras won't chain them all."

But Wright lunged across the passage.

"The air screen. I wasn't a Dedul Guard for nothing. "Quick!"

His voice seemed muffled. Nason, trying to jump, was horrified to find his legs refused to move. A crushing weight had dropped upon his shoulders. His ears hummed; his vision was clouding. He saw Jack Wright stagger to the screen; saw it slide upward. Wright took one dragging step forward.

There was a sickening thud. A body lay, motionless and glazed-eyed, at Nason's side. Latvu, The Cheerful. Nason saw Wright start to fall just as a blanket of black whipped across his eyes. Sounds died abruptly. Something struck him, but he felt no pain.

AN INSISTENT hammering began somewhere far back in Gregg Nason's mind. The stifling night was greying. He felt a feathery touch upon his arm. The hammering welled into a low confused hum of voices. The touch on his arm became steely fingers. His eyes opened.

He sat in a room with Latvu beside him. Downy chair cushions were beneath them; overhead was an umbrella-like canopy. An expansive horseshoe-shaped table was looped around them. They faced the open end, looking upon a metal and plastic cubical machine—an enlarged copy of the mine station's Voltav—which was guyed across that space several feet above the floor.

Dignataries of Luvium sat about the table, facing them. Fat men, thin men, old and young. Some were scowling; others were busying themselves with desk machines, scanning pictures and barking orders. Well back, beyond a floor space across which couriers were scurrying, Nason saw tier after tier of seats, alive with Luviumians.

"Take a good look," the man at his side chuckled. "Behold, the master minds of an empire—the aristocracy, the figureheads. Behold, Luvium's so-called finest about to scrape their noses to a chunk of tin and glass."

"Come again?"

"This court is a sham." Latvu pointed. "That machine. That master Voltav is the true ruler of Luvium. The Dedul's Council no longer councils. The Dedul, himself, now hides in his private quarters and lets this contraption front for him while he labors over dirtier tricks to pull on his subjects."

"What happened to Wright?"

"Who?"

"Jack Wright. Adu, The Stranger."

Latvu smiled blandly. "You are," he said with a glance at the canopy above them, "on trial right now. Those nobles you see are carefully studying your delicious self through instruments in this canopy. Skin texture, head contours, condition of teeth and toenails *plus* every word you speak is being faithfully recorded. So is, unfortunately, your exact mental frequency. This last, of course, to enable them to direct you around like a zombie should you ever don one of those prepared helmets. If you get what I mean!"

"I think," Nason said, "I get what you mean. What happened to us?

"We were trapped, sir, by a paralytic ray. Those slender black rods build a magnetic force which is able to blanket

the frequencies utilized by motor nerve fibers. Impulses, originating in the cerebrum, are neutralized by application of this four-powered weapon."

"And that helmet business?"

"Merely a vicious adaption of the paralytic ray. Instead of motor nerves, the more critical sensory centers are attacked. The helmet contains a receiver which had been pretuned to the mental wave of the wearer—or the dope they want to catch. Impulses, bearing orders, are broadcast to that helmet and thence by bone-conduction to the sensory centers. No human mind can resist—"

"Prepare for trial!" A voice blatted.

THE SPECTATORS hushed. The nobles came to attention. All eyes turned toward the enlarged Voltav.

"Present case history of prisoners," the machine commanded.

A noble rose, rustling numerous sheets. He reeled off a series of figures, described several charts, detailed many equations and droned out a sequence of wave lengths. He sat down breathlessly.

"Approved. Describe crime of the alien-born."

"Which is you!" Latvu chuckled.

Another dignitary got to his feet and cleared his throat.

"This man—"

"Reject. Sex of accused has no bearing. State correctly."

A rumble ran through the gallery. The noble winced.

"*It,*" he said, "was apprehended in the mines of Louma."

"Reject. Such facts previously recorded in a lower court. State charge only."

"Trespassing."

"Reject, Faultily charged. Correct charge is: illegal entry, theft, disorderly conduct, non-sanitation and wilfull intent to obstruct justice. The sentence is—"

"Sentence!" Nason gulped.

Latvu grinned. "Things move fast these days."

"But they—it hasn't heard my side of the case."

"You got one?"

"You tooting well right I got one!"

"But you can't argue with a chunk of tin."

"Who's going to argue with a chunk of tin!" Nason lunged to his feet. "Listen, you stuffed shirts. While you sit here twiddling your thumbs and listening to this cockeyed juke box, there's things going on you ought to know about."

"Reject—"

"Reject, hell!" Nason swept the table of nobles with blazing eyes. "Listen to me, you muttheads. You've got a neat little layout here. From what I've seen, you're pretty smart. But here's something you don't know. You aren't the only fish in the pond. There's a lot of other guys in this hunk of world. And on it. Including some low-down skunks from the Greater Third Reich. Don't sell those babies short! They're dirty, mean and tricky. What's more, while you're setting here, polishing your diamonds, they've been going to town on a beeline.

"They're here. Nazis. Pulling tricks they've pulled before. Infiltration—and capitalizing on internal discord. Like termites, they're taking a nibble here; they'll take another there. First thing you know, down comes your house and there they are standing over you, laughing to beat hell while they kick you in the belly and steal your diamonds. Let me tell you what happened up on the surface—"

"Repeat!" the machine rasped.

"I said surface!" Nason snarled. "The upper world. The land of grass

and oceans and flowers and sun and moon and stars. You guys live in the rock. We live on top of it."

"Describe," the machine commanded.

NASON gasped, wiped his brow and nodded grimly down at Latvu.

He began talking rapidly. Nobles sat, chins on hands. The gallery leaned forward. Even the couriers stopped their flitting to listen. Nason sketched it all: Oceans, tides, spinning spheres, seasons, astronomical distances, planetary action, the phenomenon of solar heat. He stopped only when his breath gave out. He sat.

A crushing stillness had fallen. After a spell, a noble coughed. Somewhere in the gallery, a baby cried. A gasp like wind through needled pines swept the audience chamber followed instantly by a clicking sound from the machine. A screen unfolded above it. To it came, in faithful reproduction, a picture of the solar system as Nason had described it. Blazing suns and their planets; moons, meteors, comets. Suddenly, all rushed together in a violent explosion. Instantly there appeared another picture. A close-up of a giant sphere, spinning at tremendous speed. Nason saw land areas, oceans and cities. Abruptly, the oceans whirled madly across the land. Cities crumpled and went flying off into space. The water followed, then great hunks of land. The sphere tore itself apart and there was nothing.

The screen folded away. The voice came.

"Theory rejected. Life on a spinning sphere, or spinning spheres of great weight held apart in space, physically and mathematically impossible. Charge of prisoner revised to include insanity. Sentence is—"

"Wait!" Nason was on his feet. "All right. I'm lying. There isn't any surface world. Let's say I come from another rock-bound city like yours. An attack is planned. Some stinkers are aiming to knock you guys out and take over all your weapons and sciences. They infiltrate like I said. While you sit here, arguing behind your Maginot Line, these devils are creeping around your flanks and scouting your water lines. They station men to cut your key mains. They arrange for a suicide squad to make a diversion attack into your lowest mines. Suddenly, that bunch strikes. Your fighting men rush to the lower mines. Then, the Nazis slice the mains. You men are caught like rats in a crock. They drown. The Nazis fall on your disorganized city. And they've got you!"

Again the click. The screen unfolded. Came in rapid succession, scenes of armed men patrolling beats along giant pipes; pictures of huge compounding and pumping stations, entirely sealed in energized metal. Followed quickly by shots of similarly isolated food and atmospheric builders and conveyers, all operating on principles beyond Nason's understanding — and all under heavy guard.

PROMINENT among the atmospheric mechanisms was an interior close-up of a massive hollow ball through the center of which had been driven a slowly-turning, perforated cylinder. The ball's interior walls were pierced by mouths of hundreds of tubes, leading in every possible direction. Curving light beams, wind breaks, air slips and humming fans, plus myriads of cat-walks and ladders for maintenance crews, were hopelessly tangled around the revolving, perforated shaft. Air currents, tinted for study purposes, were galing from tubes. Each open stream swept through the whirlpool, tracing a course built for it by the light beams and slips. All inbound currents contracted the pierced cylinder; all were returned to

different ducts from which they had sprung.

"A booster bubble," the machine droned. "Least of importance in the entire atmospheric system. These are located within sparsely settled locales such as mines, prisons and the like. Return air, not too heavily fouled, is cheaply purified by the filter cylinder you see and fed back several times to adjacent sectors before being recalled to the main stations for complete recompoundation. Yet witness how difficult is sabotage of even this simple item . . ."

Came instantly, pictures of men attempting to creep along those feeding tubes; pictures of those men crossing death-dealing beams of force, of them being caught and killed in intricate traps.

Then appeared a picture of entire armies attacking the gigantic main water conduits. Cuts were made in dozens of places. Water gushed out in tidal waves only to be checked instantly by a complex series of automatic bulkheads.

And lastly, a scene of the lower mines in which not a drop of water had fallen.

"Attack physically impossible," the Voltav concluded. "The sentence thus is as follows: life at hard labor in the salt mines. For the alien-born and revolutionist Latvu, The Cheerful, and all members of their families. Trial finished."

"And that means—" Nason asked.

Latvu shrugged as Palace Guards came on the double.

"Exactly what it says. Luvium uses tons of the alkali metals for preservatives, bleaches and such. The emphasis is on sodium compounds. Salt is our best source. The chloride mines lie below the palace. We are supposed to help mine salt until the day we die."

"Or," Nason said grimly, "until the day these blind so-and-sos wake up to find a bunch of Nazis kicking in their bellies."

CHAPTER IV

"MEET the family," said Latvu, The Cheerful.

Gregg Nason winced. The sweep of the girl's white gown and the height of her coiffure added disturbing inches to her supple figure. Her dark eyes, too, were smouldering.

"You," she said to Nason, "are the cause of this. You and your fantastic stories about spinning balls, surface life and attacks on water mains by beelines."

"They're called Nazis," Nason corrected. His stomach curled as the tiny elevator in which they rode—Latvu, the girl, Elav, The Fair; and himself—took a momentary hitch in its mad descent.

"No matter," Elav said haughtily. "Neither exist."

"Easy," Latvu soothed. "We may be headed for jail, but don't forget, Adu got away through that air screen. He's free somewhere in the atmospheric system. He'll pull us out of this jam."

The girl sniffed. "Did you ever hear of anybody escaping from the salt mines?"

"There's always a first time."

"Did you ever hear of anybody living very long in an air shaft?"

"There's always a first time," Latvu said doggedly. "Besides, the revolt—"

"And who's supposed to lead that revolt?"

"I am—with Adu's help."

"And where are you two?" the girl asked triumphantly.

"Talk," Nason protested, "won't get us anywhere. There's a pack of stinkers inside your city. That water main stuff was maybe just a blind. It's a trick they've worked before. Believe me,

there's a smart, tough boy running this. Herman von Block. You've got to quit sneering and—"

The elevator stopped with a bone-bending jolt. The door slid open. A blast of hot briny air rushed in just as a tinny voice said,

"Journey's end. Elevator returns immediately. Enroute its interior is subjected to intense heat. The floor melts away. Prisoners return at their own risk."

"I," Nason gasped, "am getting out of here!"

He jumped, tripped over his own feet and sprawled on a salt-crusted floor just as a sword whistled past his skull. He scrambled erect to see Latvu already at grips with a foe. A uniformed man, wearing front line gear and clutching a Luvium sword. The gutteral sounds he was m a k i n g w e r e meaningless through Nason's coned ears. He was a German, fresh from the desert.

LATVU twisted a tanned wrist. A scream. The Luvium sword flew from tortured fingers. Elav, The Fair, streaked from the elevator and caught the b l a d e mid-air. Her long gown tangled her legs. Brazenly, she ripped the garment clear of her supple body, disclosing skimpy white s h o r t s and halter. Her long hair came tumbling down. She batted a shimmering black wave from her scornful eyes, whirled and ran the sword through the Nazi's heart.

The elevator door c l a n g e d. The cage whisked upward, revealing a shaft bottom choked with charred bones. The room, itself, was upward of a hundred feet square. Dim lights reflected from salt-specked walls. In several places, metal posts held plates firmly against buckling portions of both wall and ceiling. In two opposing walls, several narrow exits fed s t e e l-p l a t e d lanes which left the c h a m b e r in sweeping curves. Each lane was pierced on each side with bar-crossed doors feeding cramped cell blocks. Most cell doors were open.

The din of a mighty battle rode the salty air. Here, in the elevator room, tanned Germans, most wielding bayonets, and pallid-faced Luviumians with swords swirled about in fierce battle.

A Luviumian fell close by. Latvu swept up the man's sword and whirled in time to skewer a charging Nazi. Another R e i c h a t e e r was bearing upon Gregg Nason. He dodged, caught up a loose blade and swung hard. He missed by a foot, spun and flopped flat on his b o t t o m. The Nazi grinning, poised for the kill.

A sturdy warm thigh slid suddenly across Nason's c h e e k. A Luviumian blade and a round girlish arm zipped forward. The s w o r d point slithered deep into the Nazi's chest. Elav, The Fair, y a n k e d her metal free and snapped,

"On your feet, alien-born. Your bee-lines are—"

"They're Nazis!" Nason wailed.

Latvu was parrying the blundering bayonet jabs of three opponents.

"Behind me!" he ordered, and as Nason and Elav complied, he shook his head indignantly. "Rock, what a way to fight! No line; no plan." He cut down one of the trio threatening him, and, as the other two c h a r g e d, he shrugged wearily, lifted his balance arm and leaned aside. He let a bayonet dart under his armpit, then clamped his upper arm upon a brown wrist. He thrust past his trapped victim, pierced the other's throat deftly and, with almost the same move, hammered his sword hilt in viciously against the back of his captive's skull. His nose wrinkled as he tossed the body aside. "Clods. The worst swordsmanship I've ever seen."

"You haven't seen *this* fight yet," Elav said scornfully, jerking her tousled head at Nason. "I was better when I was six!"

"Maybe you were!" Nason flared. "But I was right about one thing, sister. These are my Nazis, fresh off the desert. And I'll lay odds *this* is the spot they've picked from which to spearhead the attack."

LATVU had turned to measure the field with a critical eye.

"You there!" he roared. Nearby Luviumians looked up in surprise. "Build a line, you fatheads!"

"Who says?" one stalwart snapped, wrenching his blade from a foe.

"Latvu, The Cheerful, says!" Elav yelled back proudly.

The warrior's eyes p o p p e d. He turned to his neighbor and cried the name. Others caught it; heads swung. A line crept out of chaos—a solid line of reddened points turned toward the Nazis.

"One united front, anyhow," Nason muttered.

"I got a name," Latvu g r i n n e d. "Even in jail." He measured the odds.

"One-to-three a g a i n s t us. It's an even fight." A scowling German sidled towards him. Latvu feinted, drew a lunge, then c a l m l y ran his weapon home.

"Nice balance," he mused, withdrawing the blade and hefting it appraisingly. "Too good to be wasted on such material. I think I'll just supervise."

Howls lifted above the crash of steel. A horde of Nazi reenforcements was pouring wildly from one of the opposite cell lanes. Behind the mob, Nason saw —the scarred face of Herman von Block, hated gestapo chieftain. And hooked to his lean s h o u l d e r was Wright's radium rifle.

"We're sunk!" Nason gasped. "If that damn thing can bring down a plane, what won't it do to us!"

"Nothing," Latvu said calmly. "Its charge spreads. Unless he stands in front of his line, he'll kill every man he's got. That, sonny, is why we use swords . . . just let him try to make a stand before that crowd." The Cheerful grinned wryly. "On second thought, I believe I'll resume action."

He elbowed his way into the line. Nason, following, bumped twice into Elav. He thrust her aside, but Latvu, already at work, suddenly became all elbows and hips.

"No room," he protested over his shoulder. "Guard the rear."

Nason dropped back. The line now stretched from wall to wall. The cell lanes behind him were empty. In the space between, Luviumians were roaming back of the fighters, ready for relief or replacement.

"Guard the rear!" Nason growled. "From what—ghosts?"

Elav, her black hair streaming across her bare shoulders, was rapidly gathering loose blades. Each time a fighter snapped his weapon or lost it, she was there with a spare.

"They can't be bothered protecting you, too," she sniffed.

NAZIS were still cascading from the opposite line of cell blocks with von Block screaming orders. There was a mob attacking Latvu but most piggish eyes were fastened upon Nason at the rear. On impulse, the pilot slipped the cones from his ears. Instantly the gibberish became intelligible German. He heard, "Yankee pig!" s n a r l e d from many lips, and von Block was bellowing over and over, "Break through. Get that dog. The iron cross for the one who kills him!"

"So ho!" Nason murmured as he reset the cones.

"They dislike you, too," Elav remarked pleasantly.

"And I'm beginning to see why," Nason said. "In all this quarrelsome underworld, Wright and I are the only ones who know what's cooking. There's an odds-on chance we may yet wake you mutts up to your danger." His brow furrowed. "It's starting to make sense. They first tested Wright's radium rifle out in the African campaign. Which accounts for those tough stands they made. Then, they passed some picked men through the mines into Luvium by using Wright's helmeted identification. These guys cased the joint and then knocked over the mines of Zemd which guard the way in from the surface.

"I remember, now, there was an open air screen in those mines. And that, little lady, is how they got here. Crack scientists went to work on the death traps and rays inside those tubes. They by-passed compounding stations and cleared themselves an avenue down here right under the palace. All they need to do is to come in through that silvery barrier, step into an air shaft and trot down here, avoiding things like calibrated rays which would give them away.

"That map was a plant. Everybody must carry one. They hoped to get most of the city's reserves concentrated along the water mains, thus letting them work here in safety. They're counting on your cockeyed isolationist policy and your internal wranglings to make the job a pushover."

There was a roar. The Nazis were pile-driving forward, oblivious to losses. Though he fought like a demon, Latvu was forced back. The Luvium line did likewise to protect its flanks. Casualties mounted rapidly on both sides. The man beside Latvu fell and Nason plunged into the gap. Bayonets promptly showered upon him. He was nicked chest, arm and leg.

"Back!" Latvu gasped. "Our only chance is a cell lane. We—"

The line's center collapsed suddenly. Nazis poured gleefully through and around, isolating both ends. Latvu quickly passed the word. At his hissed command, his group feinted one way and lunged the other. They slashed through stubborn defenses and hustled for the nearest cell lane. Reaching it, they whirled and set a three-man line across the corridor. The other band attempted a similar maneuver, but the thrust was smothered, the group annihilated.

At once the combined enemy forces charged Latvu's band. Two Luviumians fell.

"Back!" Latvu roared. The survivors, with Nason sandwiched between, broke contact and raced away along the lane's curve. At The Cheerful's cry of, "Stand!" two huskies squared off with him and stemmed the Nazis rush. Behind the line, one of the remaining warriors leaned against the wall.

"OUR homes," he said, nodding at the cells. "We fought for them. Vainly. We're the last in the mines. The mines," he added, "are off at the other end of these lanes—with the compounders."

"Compounders?" Nason asked.

"The machines. Our work was mostly muscle—picking, shoveling and wheeling the ore to hoppers. The compounders whipped out the sodium products; stuff like preservatives, reducing agents and bleaches—material which is piped upstairs."

Latvu dropped back for a breather. Beyond the fighters, von Block could be seen, urging his men on. Twice, the Nazi reached for his rifle. Each time he shook his head.

"Let him try it," Latvu said grimly. "If he opens a hole, we'll have him." He scowled then. "Where's the bosses down here?"

"You're looking at 'em."

"Not you guys! And still you worked?"

The man grinned sourly. "We went on strike once. But not for long. They couldn't shut off the air, since we're on the tag end of a line which also supplies the palace, but they *did* shut off food and water. Work was resumed promptly." He shrugged. "These Brownies! We had 'em figured as brain cases out of the pitchblende mines. But they're too well organized for nuts. They want control of the diggings, but nobody can figure out why."

Two of the line fell. Latvu and the prisoner swung and again checked a concerted rush. Nason tried twice without success to worm his way to the front. Elav was darting back and forth, inspecting swords and wounds. She caught Nason's eye and sniffed,

"I fought better when I was six!"

"Give me time," Nason growled.

A Nazi came plowing through and was dropped almost at his feet. The German still had a pistol in his holster. Nason grabbed the weapon and broke out the clip. It was empty. A dribble of salt fell into his hand. He stared, first at the gun, then the salt. He straightened, wide-eyed, just as Latvu pulled back to let Elav doctor a gash over his eye.

"What's eating you?" Latvu asked.

"I got an idea that scares me," Nason gasped. "Tell me: what goes with this energized shield that Wright was telling me about?"

"Luvium's outer wall?"

"Yeah."

"It's energized."

"I know that, dammit, but—"

"They've built a force field around it," Elav said, flipping her hair from her face.

"And that sets off explosives?"

Latvu nodded. "It's a protective measure. Prevents an enemy getting in too close with nitrics which have a too rapid expansion rating."

"But what happens if a guy sneaks explosives in?"

"Can't be done. The walls would fire the most minute speck."

"All right. What if you ran in the less active ingredients—the salts, acids or whatever you use? Or better yet," Nason wet his lips, "what if you used the ingredients already *in* the city to make your explosives. Would that product be detonated?"

"No," Latvu said slowly, "not if it was compounded at a reasonable distance from the walls. Actually, we, ourselves make much explosives. Of course, we have instruments to detect unusually large quantities."

"How about down here?"

LATVU stared. "You mean to say these beelines—"

"Nazis, dammit!"

"—these Nazis figure on making powder *here!*" Latvu guffawed and Elav shook her head sadly. "Sonny, you couldn't make enough explosives out of Luvium's *combined* potassium and ammonium beds to dent the walls of a palace wash room. As this, you nut, is a sodium chloride mine exclusively."

"You," Nason said stubbornly, "can make explosives out of sodium nitrate and—"

"A very crude product. Much too unstable," Latvu added, pointing at the pistol, "to operate an out-moded article like that."

"Who said anything about cartridge propellants!" Nason blazed. "I'm talking about explosives. A mess of it. Made here; exploded immediately. A

force which, either by expansion or vibration, would collapse these buckling salt mine t u n n e l s, and those in the strata above us; a collapse which might not bring your city down in ruins, but would, I'll lay odds, shift a lot of foundations, bust plenty of mains and play particular hell with your hair-triggered safety devices, death traps and complicated defenses which you put so much stock in. Get what I mean?"

"I," Latvu said, "get what you mean. And I don't like it."

The Nazis bucked savagely against the line. Those behind began hurling the front men s q u a r e l y upon sword points. Others were diving to grapple legs. The line became a confused tangle. It went down. Over it, answering von Block's shrieks, r o l l e d the reserves. Three more Luviumians crumpled. Nason squared off with Latvu.

Howls promptly lifted from behind. A mob of tanned Germans was sweeping like a tidal wave up the cell lane from the opposite direction. They were caught between two converging forces.

"The old story," Nason said thinly, as a bayonet tip missed his throat by inches. "What a time to die. Just when I had the damn thing figured out."

"I'll bet it was wrong," Elav sniffed. She was beside him, lithe white body flowing rhythmically, red sword parrying and blocking and then darting forth to its mark with amazing ease. "If you think like you fight—*oh!*"

A bayonet had slipped her guard. Its needle point burned straight for her rounded breast. Nason b a t t e d the metal down, struck hard at a leering face. The Nazi dropped.

"I'd watch my own knitting, Mrs. Latvu," Nason said evenly.

Steel clanged behind him. The remnants of their party had squared off against the force coming hell-bent from that direction. Even as Nason glanced back, one Luviumian dropped and another reeled, clutching a gory chest to tumble sideways into a dimly lit cell.

"Won't be long," Latvu said calmly. His sword leaped out and knocked away a half-dozen points hissing straight for Gregg Nason's u n p r o t e c t e d chest. "Watch it . . . What in rock are you staring at?"

"Behind us," Nason gulped. "In that cell doorway. It's—"

Jack Wright was crouched inside the cell, beckoning wildly.

"In here!" he howled. "In here!"

CHAPTER V

"OL' reliable," Latvu chuckled. "He never fails. You guys!" he yelled at the rear guard. "In that cell on the jump."

The spent force m e l t e d quickly through the doorway. Inside, Nason saw a suspended cot; a b l a n k wall screen; a half-dozen tubes running from the rear wall to a table whose surface had been molded into plate-like compartments. Little else. Jack Wright gripped a battered radium rifle.

"Must be the last one left in the palace," he panted. "I found it hidden away in a return-air duct. It's off-sight and weak and may short out any second."

One of the prisoners snatched it from his hands.

"They butchered my wife," he said.

The doorway was already choked with Nazis, struggling to enter. The prisoner stepped clear of his party. He aimed. There was a hum; tingling quiver. A blazing c r i m s o n streak leaped from the muzzle. The door jamb smoked; so did the writhing bodies.

"Warsaw," Nason husked under his breath. "And Coventry and—"

"I came through a fresh air duct leading from B o o s t e r Bubble," Wright

yelled. "There's a connecting screen in this—"

The rifle hum stopped. The prisoner began hammering the butt. Abruptly, he was down, a bayonet through his chest. His m a t e s, too, disappeared under a hail of points as they leaped to regain the weapon.

"The rifle's done for," Wright cried. The Nazis rolled through the doorway across the human wreckage. He braced himself. His sword seemed to coil, then disappear in blinding play, stopping the attack. "Into that air tube. I'll hold 'em off till you're safe."

"*I'll* hold! Latvu snapped.

"Me!" Nason protested.

"You," Elav snorted, batting back her hair, "couldn't hold a deep breath. Get in there."

To Nason's horror, she grabbed his wrist and whip-cracked him backward toward the open air-screen. His heel snagged a high threshold. He tumbled into a shadow-banked shaft. The girl landed atop him.

"Stumble-hoof!" Nason moaned.

In the cell, Latvu and Wright were arguing heatedly over who was to jump and who to cover. At the same time, they were dropping Nazis. . .

"They're the best in Luvium," Elav said proudly. "My Latvu. And Adu, The Stranger."

Beyond the fight, Nason saw von Block claw his way to the outer lane. There, he turned, lifted his rifle, then suddenly lowered it. His lips curled craftily. Abruptly he was gone.

Latvu and Wright reached an agreement. Their blades whirled, driving the foe back in confusion. Then, they turned and leaped together, piling all over Nason and Elav with Wright dragging the metal screen barrier behind him. Bayonets s m a s h e d against the grill; brown hands tore at it. It withstood the onslaught.

NASON rose with the rest. The tube was a scant twenty feet across and lit with dim blue overheads. Myriads of colored half-inch pipes were banked on the walls and formed a spider-webbish network over their heads.

"Compound conveyors," Wright said. guiding them away from the screen and noise. "A few carry food and water. Most pull the sodium compounds upstairs. Those blue p i p e s carry the hydroxides; the green contain chlorine; the red ones hold the h y d r o g e n released in the process of knocking chlorine from—"

"To hell with that!" N a s o n sputtered. "Let's ramble. These stinkers are making explosives. To collapse the strata. It'll knock Luvium off its pins; wreck those fancy hair-line gadgets. The Nazis will strike them while the city's all messed up."

"Logical," Wright mused.

"Could be done," Latvu nodded.

"I doubt it!" Elav sniffed.

"Moon mother!" N a s o n roared. "Will you guys move! Von Block just beat it somewhere. With a dirty sneer on his puss. Dammit, maybe he's pushing a plunger right now."

"Okay." Wright started a dog trot against the fast-flowing spicy air. "Here's my plan: we'll back-track in these tubes. We'll follow the trail the Nazis are using from Zemd's mines. We'll sneak out, beat it for Louma's neighboring mines and gather up that tentav gang. We'll come back, wipe out these Nazis and then slip up and attack the palace from the inside."

"Always that damn revolution!" Nason moaned. "All right—so long as we tag the Reichateers first."

There was a spurt of light. Wright reeled back, his face red.

"Trap!" he grimaced. "The damn thing wasn't on when I followed a bunch of Germans down here."

Latvu thrust his sword through a network of green hydrogen pipes and jabbed at a black box welded to the wall. There was a flash.

"Shorted out," The Cheerful announced. "Come on."

He took a step and was flat on his back, helmet clattering back along the passage where a tripped hammer had knocked it.

"An inch taller," Latvu groaned, "and I'd be finished."

Elav helped him up. Wright found the control box buried in the pipe web overhead. He flipped a switch and swung down.

"This," he said, "presents complications. Somebody's reset these traps and rays."

"Von Block!" Nason snarled through his voice converter.

As they crept forward, he strained his cone-filled ears for the blast which would spell finish. Forty traps they found and turned before, spent and blowing and bodies stinging from bruises and burns, they emerged from the bore into a huge, spherical compartment.

"A Booster Bubble!" Nason said awefully.

IT SEEMED even larger than it had on the Voltav screen up in the council chamber, but all features were the same. The post-like perforated filter column was turning slowly in the ball's center, surrounded by the fan-speeded air currents. The course-charting light beams curled everywhere with wind breaks and slips aiding in the sharper turns. Tube openings, impossible to count, dotted the sphere's inside wall. Ladders and catwalks stretched in every direction. The smaller conveyor tubes wound like colored spiderweb strands through the air whirlpool to converge high above and disappear, cable-fashion, into comparatively tiny drills.

The impression Nason got was that of standing inside a massive hot-air furnace, gaping up at heat pipe openings cut haphazardously into the hood.

"I don't believe it," he said stubbornly. "There's a million different air currents—some fresh, some stale—coming and going in here. Don't tell me they're all separate!"

Wright nodded. "They are—from the time they leave one tube, get their temporary cleansing in that filter and reach an exit pipe. Energized light beams act as pipes. Of course, these light beams are aligned only to hold gas which is the consistency of the atmosphere. Anything heavier or lighter tends to spill or break out."

Nason growled. "Everything in this crazy hole is hairlined. One good clap of thunder would knock you guys back ten thousand years."

"Not in here," Wright corrected. "Mixed gases have been known to explode. For that reason, every bubble like this is completely isolated with vibration bumpers from surrounding matter. A blast here would barely quiver the nearest tentav."

"All right. All right. Which is the air tube leading to those Zemd mines?"

Wright nibbled his lip. "None, of course, leads directly since this is only a bubble at a main's end. We'll have to switch shafts many times. But that one," he pointed high up through a web of green chlorine pipes stretched just above the tube from which they had emerged, "is the one we start with. I think."

"You don't know for sure!" Nason asked in horror.

"Well—no. All I'm familiar with are a few main leads within the palace walls. I do know," he said defensively, "the stale air shaft that leads directly

from the Dedul's private quarters. It's the one I came down."

"And how far," Nason asked hoarsely, "have we come?"

"About three hundred yards."

"And how far is it to the mines of Zemd?"

"Perhaps ten miles."

Nason grabbed his head. "Ten miles of traps! We wouldn't make it in weeks. In the meantime, von Block sets off his dynamite—"

"Dynamite!" Elav said in disgust. "From a *sodium* compound!"

"We'll have to try something else," Latvu said seriously. "Adu, you're *sure* about the tube that leads up to the palace?"

"Yes. It's the venule shaft right over there under those red hydrogen pipes."

"Good. I've got a g a n g of guys planted outside the palace's third level entrance. My plan was to spear straight in there the instant your inside men cut loose. What say we leg it upstairs, sneak out through a screen, slip out of the palace and bring in a few of those guys to polish off these beelines?"

"Nazis!" Nason cried brokenly.

"That'll do it," Wright agreed. "And when we're finished down here, we can enlist an army from the salt mines, race back and fall on the palace guard from dozens of different screens instead of one. If we hit hard and fast, we should snare the Dedul. Once in control of the palace, we'll have time to figure out what makes that master Voltav box tick."

"And I can get my hair fixed," Elav said brightly.

NASON'S voice was frigid. "For the last time I'm warning you! Forget this revolt and hair-dos and your invincibility. We laughed at the Japs. England smirked over her tea at Hitler. The Balkans fell because they kept on scrapping each other." His b r e a t h came hissing in. "But right now I don't give a whopping damn whether your smug little town, and everybody in it, stands or falls. What I'm thinking of are those radium rifles and paralytic tubes; these devilish death rays, the traps we've just staggered through and even these curving light pipes. With stuff like that, one lone German division could knock over the entire surface between meals. That's what I'm thinking of. This Luvium as an arsenal for a dirty little Austrian paper hanger . . . So you're going to sneak out of the palace and bring an army in!"

"Right. We'll infiltrate, of course, through the Taumb stations. Singularly and in pairs."

"Answer me one question."

"What?"

"How are you planning on getting any revolutionists past those new photo-electric ray fences which are stretched across every entrance?"

In the stiff silence, the hum of the booster fans and the whistle of air past the overhead green chlorine pipes into the prisoner feeder tube behind them was ghastly loud.

"That," Wright said, "is a slight detail I overlooked. Those ray fences weren't there when I left for Zandu."

"They went up just after I got back from Louma's mine," Latvu growled. "We're stopped. *We* couldn't even get out, let alone bring anybody in!"

"Then," Nason said, "this is where I take over. Which tube leads to the palace?"

"That one," Wright p o i n t e d. What—"

"We're going up as fast as our legs can take us. *You're* going to lead us to the grill-screen that opens into your Dedul's private quarters. We're going to meet this Dedul of yours face to face

and talk shop. We're going to forget this junky revolt and your invincibility. Your king's going to whip together that united front I've been screaming about. As fast as his crazy Voltav boxes can give the order. Now move!"

THEY stood in pitch blackness just inside a screen. Behind them lay dozens of shorted traps, plus a generous sprinkling of defranchised Nazis, of both tanned and bleached variety, who had sprung at them from converging tubes. The entire foursome bore marks of the stiff climb up ramps and ladders. Lungs ached from the foul air which had blown strong in their faces all the way.

"The Dedul's quarters are beyond this screen," Jack Wright said. "And for the last time, Nason, I'm telling *you*. Don't do it! This is Luvium. Nobody believes in the surface. The Dedul least of all!"

"Did you ever discuss it with him?"

"No."

"Then how the hell do you know what he believes! Open that screen and let me out."

Wright hesitated, then ran a finger over a photo-electric light switch. There was a snap. Nason felt through the blackness. The screen was gone. He stepped gingerly over a high threshold. For some unaccountable r e a s o n, his neck started to crawl. He gripped his sword firmly.

"Hey!" he called. "Where's everybody?"

Light sprang from everywhere just as something whammed a g a i n s t the back of his skull. One of the cones popped from his left ear. Sharp croaking cries and the sing-song speech of Luvium made a jumble in his head impossible to translate. He was falling. Pain flares exploded b e f o r e his eyes. Through the dazzling streamers, he glimpsed Jack Wright, Latvu and Elav still crouched in the air shaft with a swarm of white-skinned warriors pouring toward them. Nason saw Wright lift his hand. The screen snapped shut just as the cursing warriors flung themselves upon it.

Out in a luxuriously fitted room and beyond a massed line of brown and pale soldiery, a gaunt, acid-eyed man with a forked lightning scar across his cheek, was leaning against a desk. Behind that desk, tipped far back in a chair and with feet p r o p p e d up on the desk's paper-littered top, was a slightly built man. A tiny black mustache was wriggling under a badly sunburned nose. The man straightened and lifted a hand in a nervous gesture to bat a lock of hair from his left eye. He wore a pink Luvium toga, smothered beneath blue stones of supreme rank.

A raspy command jerked from his lips. Gibberish in Nason's coned right ear, but a bastard German to his cleared left.

And then Gregg Nason fell under a tidal wave of armed men.

The Dedul he had come to warn of Nazi treachery was himself a Nazi.

And the worst in the whole lousy bunch!

CHAPTER VI

"NOBODY'S going to blow this monkey h o u s e up," Gregg Nason said. "And they aren't going to blow it down or sideways either. That maniac wouldn't be here if there was a chance of him g e t t i n g scratched. No, sir. They've got another angle. You know what I think?"

The wiry little man working at a bench across the littered room from Nason's cot, lifted his shoulders in a gesture of weariness. He, Nason had found, puttering around this unusual

jail-laboratory, shortly after von Block's crew had dragged him down a ramp and tossed him inside.

His name, he had said, was Dalta, The Inquisitive. Von Block and Company had surprised him quite some time ago, cleaning up in the Dedul's sleeping room. Truthfully, until Nason had been tossed in, he'd been enjoying his solitude. Nobody to disturb his experiments; no one, particularly, to ask him annoying questions.

Sighing now, he fished a plastic slide from an emulsion, dried it with a blower, squinted critically at it through discs of whirling lights, passed it twice through a tiny buzzing arc and then dragged out a double-lensed contraption which Nason guessed was a microscope of sorts and popped the slide onto an elaborate apron.

"I *should* know what you think," he sighed. "You've been telling me for two days. You're certain that these beelines—"

"Nazis!" Nason corrected savagely.

"—Nazis concocted these new Voltav judicial boxes and arranged them so that they will mete out inhuman brands of justice."

"Exactly. And the reason was to foster unrest. It's working, too. The city's sore as hell over those boxes. Some guys, like Wright and Latvu, are so mad they can't think of anything but beating the ears off the skunk they *think* invented them."

"Their own Dedul? It would mean revolution!"

"Precisely. Just what the Nazis want. Unrest, internal friction, a house divided." Nason rose, walked to a receiving tube table and drew a glass of water. The reddish water of Luvium passed easily through his speech-converter membrane. "Smart devils!"

Dalta, The Inquisitive, was frowning into the microscope. "Are they really?"

Nason growled. "You still don't get it. Listen: first the Nazis sneak into the outer mines on Wright's identification. They case the joint and steal these ear cones—like these you gave me—and speech converters, and then clear out Zemd's mines. They get into an air tube. Their master minds scout a path through the traps right up here inside the palace to the Dedul's private chambers. They jump out and murder the Dedul, and lock you and the rest of the help up in case they need hostages."

"Without anybody else in the palace knowing!"

"How could they know? This king of yours always stayed pretty much to himself, didn't he?"

"I guess he did."

"And generally, when a king wants to be left alone, nobody argues much, do they?"

"Well—no."

"So the Nazis hang out a 'do not disturb sign' on this end of the palace and go to work. With the enforced aid of some of Luvium's crack scientists—shy little violets like you, maybe —they rig up those glorified juke boxes and get them planted around in courts."

"But why?"

"Dammit, I just told you. To make the populace fighting mad."

"Are these Voltavs as bad as that?"

"Have you ever been tried by one?"

"No."

"Then don't." Nason flopped angrily back on his cot. "Even if they *were* the real McCoy, they'd still be floppos. You can't beat a human being into a formula. This 'one-crime—one-punishment' stuff never worked and it never will. Like say, two guys steal a loaf of bread. One because his kids are starving; the other to resell at ten times its retail cost in a black market. You bring both guys before this Voltav and it sentences both to thirty days. You

think that's fair?"

"Well—"

"TAKE another case. One guy kills to save his wife from a maniac; another kills for the fun of it. Both get the same sentence." Nason scowled. "Can you blame the citizens for getting hot under their togas?"

"You," Dalta said, "present convincing arguments." For a moment he stared fixedly into the microscope, then cried, "Look!"

Nason bounded to his side. He saw, through the double lens, a three-dimensional picture of a slowly turning sphere. Through white banks which were unquestionably cloud formations, he could make out rolling seas and strangely-shaped land areas dotted with white specks. Off at the slide's corner, he saw a smaller, moon-like object with a pin point of dazzling yellow behind it.

"That," Nason frowned, "looks like a planet with a moon and maybe a small sun. What's the gag?"

The little man's eyes were dancing. "And those white specks on the land? Could they—is it possible—might they be open cities?"

"Very possible. They're spaced fairly even and a lot are on rivers and the coast." Nason's teeth ground angrily on the converter membrane. "You guys lied! No surface, eh? No spinning balls in space! Dammit, that's a close-up shot of some planetary system we of the surface don't even know about!"

Dalta was trembling. "My life's dream. My wildest hopes fulfilled." He tried unsuccessfully to steady his voice. "That, sir, is a fixation of a fraction of a hydrogen atom."

"What!"

"Life in an atom," the man said awefully. "Life on the *surface* of an electron. Think what it means! We—" His voice was husky, "We of Luvium might ourselves be living inside an electron of some staggeringly huge element—living inside a spinning, suspended electron upon the surface of which other people, other races might be living this very moment!"

Nason smashed a hand against his brow. "God!" he moaned. "Hundreds of years ahead of us in practically everything, *but* they're just finding out what *we* knew while we were still hanging by our tails from trees." He glowered. "Of course, there's life on the surface! And when these Reich rats start moving—"

Dalta, The Inquisitive, turned suddenly. His lips were white. "I thought them only revolutionists—that you were a pitchblende case. I apologize. Life on the surface of a suspended, spinning sphere is possible. Luvium is in one. You have come from its surface. And these beelines—"

"Nazis!" Nason almost screamed. "Listen: I'll explain what's happening for the last time. Zandu—"

TWO men stepped from an air screen upon the polished flooring of a palace corridor. The smaller stood, plucking nervously at a frayed toga while he watched shouting Palace Guards, scrambling from a nearby chamber to bound, with blades ready in tight fists, upon the moving centered section—a section already packed. Hard-by, a husky made an abrupt stop and, cursing, bent to adjust a sandal strap.

Dalta The Inquisitive, asked shyly, "Why all the rush?"

"The revolt!" the youth snapped without looking up. "It's starting. The third level Taumb station just reported an attempt to drive through their defenses from inside the palace. Adu and Latvu were spearheading the attack!"

"They would!" Gregg Nason muttered.

"Their force was small. The attempt was easily smothered. We're wiping up the remnants and bolstering for a rush at the main body."

The warrior bounded away.

"There is no main body," Nason said bitterly. "That was a wild try by Wright to get clear of the palace and *organize* a main body. Well, they failed. You dummy, why didn't you tell me you knew how to get out of that prison through an air screen!"

Dalta sighed. "I was happy there. And I never dreamed—"

"And you'll never dream again," Nason broke in, "unless you get the lead out of your rear and help me figure out how to stop the Nazis." He stared as men continued to swarm past. "How's about us lassoing some of these guys?"

Dalta frowned. "Could do. But we might have a terrible job explaining the situation. And if time's so short—"

"It is, brother. Herr paper hanger wouldn't be here otherwise. Hell's set to pop. Right down in those salt mines. What's the quickest way there?"

"The elevator."

"No go. They control the diggings now. They'll have that shaft under heavy guard.

"The air tubes then?"

Nason winced. "It's lousy with traps. And Nazis. And you—" He measured his companion critically, "don't look like you could bat your way out of a paper bag." A rueful smile touched his lips. "I'm not so hot either, as Latvu's pretty little Mrs. can testify."

"The Voltav!" D a l t a gasped suddenly.

"Come again?"

"The master Voltav. It's a rapid calculator. We could give it the situation. Out of its supply of formulas, equations and crime histories, it might devise an instantaneous solution to our problem. Come!"

THEY stood, flushed and panting, in the Council Chamber. The horseshoe table was empty; no one sat in the galleries; no couriers sped across the floor. The V o l t a v hung before them, its glassy plates regarding them balefully.

"Let's try it once more," Nason said desperately, m o p p i n g his steaming brow. "This time *you* ask it. But for God's sake, don't say anything about the surface."

"Reject!" the machine boomed, its screen starting to unfold once again. "Life on a spinning sphere physically im—"

"All right; all right," Nason moaned. "We heard you." And as the screen disappeared, "You try it, guy."

Dalta, The Inquisitive, tweeked his nose nervously and spoke at the instrument. "A strong force of invading beelines—"

"Nazis!" Nason hissed.

"Reject!" boomed the m a c h i n e. "Name uncatalogued. Give case history of invaders. P r e s e n t all compounded data—"

"But good gracious," Dalta protested. "That's impossible. They're alien-born invaders. No man knows—"

"Reject! Sex of accused has no bearing—"

"See what I mean, chum?" Nason said meaningly to Dalta. "This piece of junk can't reason. It can only sort and review *known* factors. Like I said: you can't take the human factor out of law. That stuff of tempering justice with m e r c y isn't just talk. It takes flesh and blood to judge flesh and blood. Not a chunk of metal - "

"Reject!" b l a t t e d the machine. "State exact type of metal, its ionization, melting point, conductibility—"

"This," Dalta said "has gone far enough. Much, much too far."

He sidled forward like a testy rooster

and grasped one of the supporting guy wires. A twist put a sharp sizzling arc behind one disc.

"Reject!" the voice grated.

Dalta, grinning fiendishly, reached up underneath the Voltav. There was a pistol-like crack; a puff of smoke. More arcs began c r a w l i n g behind plates. The screen started convulsively upward; the voice croaked as if in terror. The screen fell back and the voice faded. The Voltav shivered once and was still. Dalta strutted back, dusting his hands.

"That's that," he said with unexpected force. "No piece of perverted pigiron can talk to *me* that way. Or will—to anybody else."

"You," Nason said, "have a lot of guts for a runt at that. They'll boil you in oil. But we still haven't—"

THE main door of the council chamber crashed violently open. Howls, screams and the bang-smash of colliding steel r o l l e d in an earth-quaking sound wave upon the two. A sweating, straining, swearing mob of fighting men backed rapidly into the room before an avalanche of Palace Guards. In a flash, the chamber was crammed to the gallery with leaping, lunging fighters.

"Never a dull moment," Nason said helplessly.

Dalta, The Inquisitive, wagged his head. "It's the Palace Guard mopping up the revolutionists. Oh oh, watch it!"

A half-dozen renegades had vaulted the curved end of the table and were backing toward them, crossing blades with a swarm of g u a r d s who had poured after them. The play was at bewildering speed, carrying through a complex series of feints, blocks, parries and thrusts. Yet as Nason watched, his brow knit. In spite of the crushing odds, not one of the six had yet been scratched. Nor did any of the guards bear marks. A glance around the justice hall disclosed a most startling fact. Not a body, not so much as a blood drop marred the waxy flooring.

The six renegades kept retreating. In the middle of those six, two broad, sweaty backs stood out. And as those backs drew nearer, their owners cutting and slipping points like maniacs, Nason's eyes slowly filled with murderous rage.

The revolutionist on the left was Jack Wright; the one on the right, Latvu, The Cheerful—both untouched and touching no one.

"Watch it," Jack Wright was saying. "Wrist above your elbow. Now when you lunge—no, you fool, don't snap hips on the pivot. You left an opening bigger than the door. Try it again. This way. Then—"

And the b r a w n y youth matching blades with him, was hanging on every word. As was the warrior tangling with Latvu and the others who massed behind, waiting their chances to step in.

Gregg Nason's howl almost brought the vaulted ceiling down in pieces. He spun Wright savagely.

"You—" he choked. "You—"

Nothing more would come out. The private battle stopped suddenly. Latvu, his mates and the palace guards knotted around.

"Well, well," Wright said. "Big surprise. I'd have sworn they mashed your head clear—"

"You," Nason roared. "You dirty, double-crossing, two-timing—" He had to take a breath. "Practicing!" he screamed. "Giving lessons. Playing at maneuvers. The whole smug bunch of you. All while the Nazis—"

"Easy, son."

"Easy, hell! What in God's name—"

"It's the revolution," Latvu said, coming forward. "One of those blood-

less kind. Truthfully, we haven't any quarrel with these guys. A lot of 'em are good friends. To come right down to it, we aren't even fighting *men*. We're fighting this Voltav." His gaze flicked past Nason to where Dalta stood, pulling uneasily at his toga, beside the smoking instrument. "I see somebody's beat us to—well, if it isn't Dalta!"

"*Palace Guard Attention!*"

It was a voice, exploding from hundreds of hidden speakers. Hearing, every man in the room froze.

"Palace Guards: Emergency. Attention: all levels; all stations; all reserves. Go to battle stations immediately. Lethal gas reported entering lower levels in alarming quantities. Origin definitely fixed as below Palace. Salt mines suspected. All attempts to contact prisoners unsuccessful. All scientific stations attention! Gas is in fresh air mains. Impossible to check. Rush construction of masks. Neutralizing agent: Phenol –"

Jack Wright's face was drawn. "Masks. They'll never make it. Millions will be needed. Gas—"

"Invincible Luvium!" Gregg Nason said savagely. "And you guys laughed at me. Well, somebody else is laughing now. A screwy little paper hanger who's already got his feet planted on your Dedul's desk." He whirled suddenly.

"Where you going?"

"After that paper hanger! It's our only chance."

CHAPTER VII

"BELIEVE us," Jack Wright said. "We didn't desert you. In fact, we just got away by the skin of our ears."

"And you know how things stood," Latvu added. "If we'd jumped out of an air screen and yelled, 'Help! Surface raiders attacking,' we'd have been kicked right back into the salt mines."

"We crept around in the tubes," Wright finished, "picking up a few guys we could trust and then tried to crash out the third level station. We figured on rounding up Latvu's gang. We didn't make it."

"But you had to drag out that fight!" Nason raged.

"What else could we do? We didn't want to kill anybody. The guards didn't want to kill us. But if they took us, it was 'back to the salt mines!' If they let us escape, *they'd* have been thrown down the elevator. It was a stalemate. So we—"

"All right; all right," Nason said testily. "Save your wind for what's coming."

They rode speeding palace floors. An army stretched behind them; one which doubled at every intersection as guards continued to leap aboard. Latvu and Wright began scooting back and forth on the staggered-speed sections, howling orders. Even tiny Dalta, The Inquisitive, was squeaking commands right and left.

Wright vaulted back to Nason's side.

"We'll wipe out the Dedul's Quarters. Then I'll rush a picked squad down that foul air shaft."

"But the gas!"

"The gas is coming up the fresh air lanes. It'll take time for it to get back into the stale air ducts. If we go like hell, we maybe can race it to that Booster Bubble and on to—"

"*Attention!*"

The Palace communication system again spat into life.

"Gas filling lower levels. Evacuation of populace to higher levels nearing completion. Warning to middle levels: prepare for immediate evacuation. Upper levels take note: keep off streets and Taumbs. Prepare to house thousands of evacuees. Warning to

all: shields and make-shift masks ineffective. Gas very heavy; extremely penetrable. Prepare—"

"Never," Wright said helpless, "have I ridden a slower floor!"

"What happened to Mrs. Latvu?" Nason asked.

"Who?"

"Elav, The Fair."

"Oh, her. It was funny. When you got beaned, she demanded we stay and fight. We had to drag her away. We had a helluva argument. She insisted we go back and rescue you. While we were rounding up our little band, she disappeared." A shout went up ahead of them. Wright pointed. "The Dedul's Quarters. We're there!"

"And they're waiting!" Dalta gasped. From nowhere, he'd grabbed a sword. His tiny body was as determinedly corded as that of the brawniest husky about them. "Latvu's going to swing around and hit from a side entrance. Adu, what say you smack 'em head on?"

"Okay."

"I'll grab me a couple squads, slip through an air screen and give 'em the 'what-for' from the rear. And you, alien-born—how'd you like a crack at the beelines' headman?"

"It's Naz—*Swell!* Let's go."

DALTA flung up his hands. Twenty of the palace's finest bolted from the mob and pounded after the surprising mite as he darted from section to section. Gregg Nason c a u g h t them just as they reached the solid flooring by the wall. The floors swept on by, carrying a sword-studded t a n g l e of fighters. Shouts again rang out ahead. The clang of steel sounded.

"Contact's been made," Dalta said, as he slid a jewel-crusted screen. "Now it starts. I n s i d e, men, and on the double."

The air in the shaft was chokingly foul. The light was poor. Yet their self-appointed leader found every trap and ray, and turned or shorted them almost without breaking stride. Three Nazi sentinels lurked in the shadows before the screen to the Dedul's private room. Dalta, The Inquisitive, was on them, blade sizzling almost before they realized he was there. He cut down two. The third went howling into the blackness down the venule tube toward the Booster Bubble with the foul air and Nason's curses streaking behind him.

"Follow!" Nason thundered. "He's headed for the B u b b l e and the salt mines. If he tips them off —"

Not a man moved. Dalta's tiny fingers were working the screen's light switch.

"Bad strategy. M i g h t be an ambush. Got to clean out these quarters first. Protect our rear." The panel snapped. "Forward!"

Nason tripped on the high threshold, fell prone and the entire band, including Dalta, c h a r g e d like behemoths across his body. By the time he'd staggered erect, they'd mopped up the room and were chasing a handful of survivors pell-mell through an arched doorway and down a long passage toward the suite's front w h e r e s o u n d s of Wright's pile-driving f r o n t a l attack could be faintly heard.

"Just can't seem to hit my stride!" Nason moaned.

Directly across the room, a smaller door slid open. A head poked cautiously out. Dark, fear-ridden eyes s t a r e d about. A b l a c k mustache twitched under a sunburned nose. A quivering hand lifted to bat at a tumbling hairlock. Then, those eyes found Nason.

The man's jaw popped open. He lunged into the room, dived behind the desk and whirled, screaming like a ber-

serk horse at the doorway he had just quitted.

Three hulking Nazis, geared for front line action but carrying Luvium swords instead of rifles, exploded from the darkened room and flung themselves toward Gregg Nason. Behind them, there appeared another Reichateer — a gaunt, acid-eyed individual with a light radium rifle swung over his shoulder.

He emerged, battling hard to subdue a squealing Elav, The Fair.

"Alien-born," the girl shrieked. "Get 'em!"

NASON grabbed for his sword. It stuck in its glassy scabbard. The three Nazis swung blades together. Nason, gasping, ducked. Racing steel shaved hair from his head. A point sliced the lobe of his left ear. He lunged sideways, tripped on the toe of his sandal and landed flat on his back. Whooping gibberish, and grinning, the Nazi trio dived for him. Over their whoops — and the rapidly swelling clamor of the battle in the suite's front chambers, Nason heard the girl scream.

"Stumble-hoof! Amateur! I was better when I was six."

Something happened. All of a sudden, Nason found himself standing in the room's center, swearing like a marine in a crooked crap game, watching a Nazi sliding lifelessly off the blood-smeared point of the sword he held — slide off and down onto the mutilated bodies of his two teammates. Nason's own left arm stung; his right eye was swimming in blood from a forehead gash; and his right hip had been carved almost to the bone.

"Some fight!" he gulped. "And, by golly, I did it!"

Nazis, fleeing the front room's debacle, were already in sight in the connecting passage. Beyond them, Wright, Latvu and a bouncing Dalta could be seen, slicing devastating holes in the fast-crumpling ranks. Nason took a breath. Hard by, the mustached Nazi overlord was diving like a scared rabbit into the air shaft with Hermann von Block looping toward it, dragging a writhing Elav along with a two-handed clutch on her throat.

One savage bound carried Nason there. He uncorked a roundhouse swing at von Block's scar, forgetting entirely he held a sword. The gestapo chief dodged easily. Nason spun around twice, tangled up his feet and caught himself just as he was tumbling backward into the air vent. Von Block, chuckling, dropped the girl and grabbed for his radium rifle. The weapon snagged his toga. Nason scrambled to his feet and charged. Again, von Block dodged. He yanked his sword free and cut at Nason's groin.

Elav, The Fair, stared horror-stricken from the floor.

"Your sword, Stumble-hoof. Block that blow!"

Nason slammed his metal down just in time. The clang of meeting blades dashed the bestial fury from his mind. He went to his toes, slid cannily around, stopping every stroke von Block threw, till he stood between the German and the air shaft.

"This, you cutthroat," Nason said, "is what I've been waiting for."

Von Block's sneering answer was meaningless through Nason's ear cones. Again, the gestapo ghoul slashed with his weapon. Again, Nason checked. Mad seconds, they powered it toe to toe, blades spitting fire. Elav as she struggled to rise, glanced at the front passage. The whipped Nazis were coming down it like the wind.

"Hurry, alien-born!"

Von Block made a sudden lunge and locked the guard of his weapon against

Nason's. At the same instant, he fisted the hand of his balance arm, swung brutally for Nason's jaw.

"Foul!" Elav yelled, struggling up.

Nason took the blow flush on his blood-drenched jaw. And grinned.

"If that's all you've got, it's bye-bye."

HE ROLLED the sturdy wrist of his sword arm far over, then snapped it back. A bone cracked. Von Block squealed. His blade slipped from his numbing fingers. He backed, gaping foolishly at his empty hand. Abruptly, his eyes lifted to focus on a spot behind his enemy. Straightway, he screamed a gibberish command.

Gregg Nason whirled. The first of the routed Nazis was not yet out of the connecting passage. Nason yanked back to see Hermann von Block's heels disappearing into the venule shaft. A mocking laugh drifted back. Elav staggered back, her lips curling.

"I learned that trick *before* I was six. You —"

Out of the passage, like bullets from a pistol, came the beaten third Reichers with Wright, Latvu and a now savage-eyed Dalta pressing them hard. Behind that capable trio charged the best in Luvium.

The Nazis poured into the room, eyes lighting evilly at the sight of Nason and the girl squared off before the dead-air vent.

Reddened blades lifted. Gregg Nason spun Elav behind him. A split second later he was catapulting sideways out of the path of that thundering horde with Elav still hanging to his wrist.

"*You* did that!" he raged at her.

He landed beside the Dedul's desk. Elav's wet body slithered upon him. The Nazis chased by, not daring to hesitate. Man after man disappeared into the vent. The last yanked the screen shut. Wright, Latvu and Dalta pulled up short.

"I could have stopped them!" Nason howled.

Elav smiled. "Not you, Stumble-hoof." She flung her arms around his neck and smothered his lips with kisses. "My hero! I came to save you, but you saved me."

"Break it up!" Latvu growled.

In horror, Nason tore free of the girl's warm arms.

"Believe me—" he stammered at Latvu. "She—I—"

"Shut up. We'll talk this out later."

"Forward!" Dalta was howling at the Luviumians streaming into the chamber.

Wright found the switch and slid the panel. The palace guard broke toward the opening. Nason was swept like a dust fleck into the tube and down the first ramp, with Elav clinging to his arm and gazing hungrily up into his face. Wright and tiny Dalta ran like madmen ahead. Latvu tramped vengefully on Nason's heels, spitting out a curse at every fourth step.

Nason ran harder. Overtaking Wright, he gasped:

"What's the divorce law in Luvium?"

"Haven't any. You marry for life. Domestic troubles are settled by the men. On the field of honor."

"With what for weapons?"

"Swords."

Nason said weakly, "And who's the best swordsman in Luvium?"

Wright grinned. "Next to me, Latvu comes first."

Elav gurgled and hugged Nason's arm happily.

"My hero," she murmured.

"My finish," Nason moaned. "Unless—"

As they sped down ramps and tumbled down ladders, a choking odor became evident.

"The gas!" Dalta cried back from the column's front.

GREGG NASON'S heart sank. So far, they had been keeping even with the rushing air stream. Now it was picking up speed, passing them. Small return vents were each adding their mite and as the volume of tubed air increased, so did its speed. Elav's long black hair which had streamed behind at the start, was now being blown straight before her, though she, and all of them, had increased the pace to a mad gallop.

"Hold!" Dalta suddenly bellowed. "Death ray ahead. They've reset it."

Stopping, Nason ground his shell-protected teeth as Dalta crept forward. Soon the hellish vapors would be pouring against their back, and they would die like trapped rats. Luvium's last hope gone. Proud Luvium would fall.

And why? Because like their surface cousins, its peoples had slumbered behind walls they thought invincible, rousing only to wrangle among themselves over whether or not a glorified juke box should sit in judgment over their petty crimes.

There was a spurt of light. Dalta plunged on. Starting fast, Gregg Nason stumbled. He grabbed Wright's arm to save himself, but stopped both cold. Latvu slammed into Elav. Before the knot could untangle, the Palace Guards were stamping fiercely on their heels.

"Stumble-hoof!" Wright raged, tearing himself free.

Dalta had disappeared around a bend. Wright hurtled through it—and gasped. Dead ahead, stood the little man, one arm unflung. A pathetic yet magnificent figure, motionless as stone. He stood directly under a snarl of red-coated conveyor tubes.

And beyond him was—the Booster Bubble.

A bulge in Luvium's vast atmospheric system where air currents, both foul and sweet, slipped and tumbled, seemingly without reason, into and out of the gigantic sphere; where no stream ever returned to its origin; where smaller conveyor tubes resembling colored strands from a spiderweb, entered from the captured salt mines, bearing life-sustaining hydroxides, chlorides, nitrates and sulfates to the tremendous city above.

Jack Wright stepped forward.

"Back," Dalta ordered. "Back for your life."

He, himself, moved not a muscle. Wright, like the smaller man, stood transfixed. Gregg Nason with Elav still attached crept in. Both froze. Latvu came abreast and congealed. Palace guards, too, moved up. And went rigid.

Tiny green fingers of gaseous death were twirling in senseless patterns in the bubble before them. Heavy green fingers, breaking through the frail light pipes or sliding off wind breaks, to foul other streams; to pour from the bubble in every possible direction, riding always the fresh air streams.

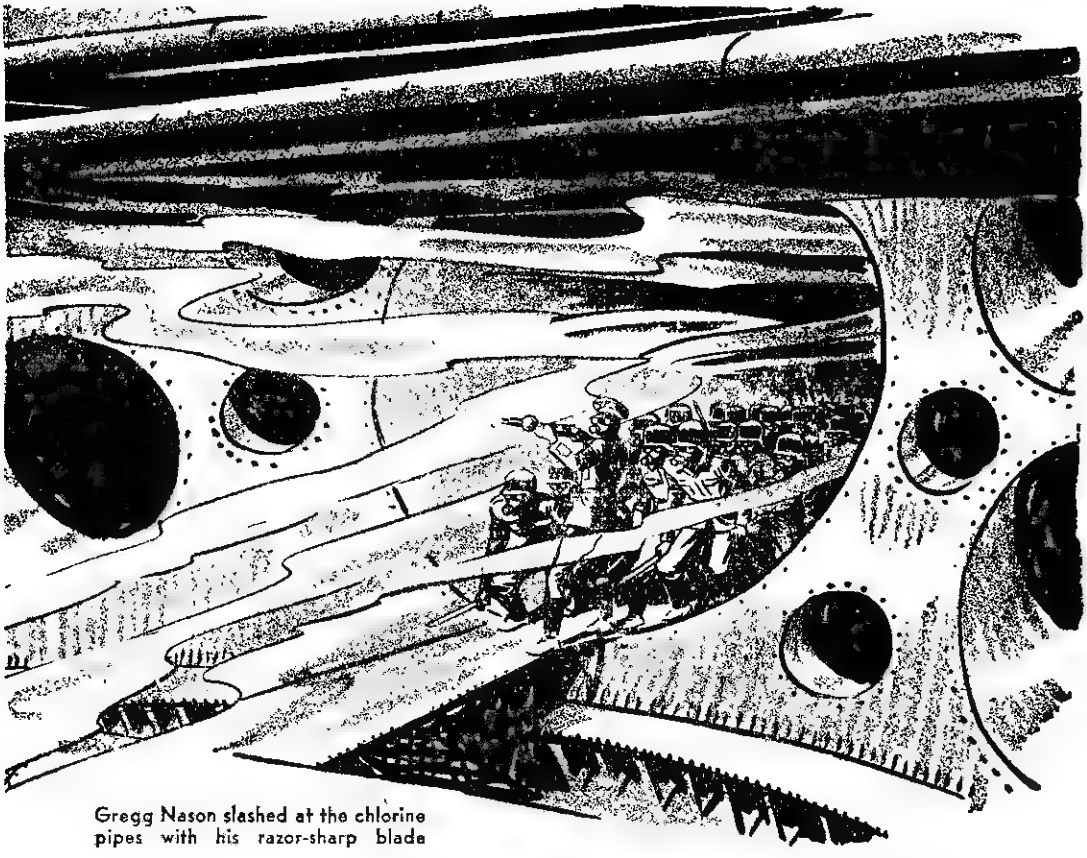
"Chlorine," Jack Wright said slowly.

"A break in a conveyor tube," Dalta said.

"Not a break," Gregg Nason said grimly.

He pointed. Faintly, through the churning, green-shot interior, they saw, one-quarter the way around the immense sphere and directly above the air shaft leading to the salt mine cell block, scores of the slender, green-coated pipes sheared in two. Edges of pipe ends glistened. From those ends now poured gulping clouds of the hideous gas. Poured out and down—the bulk to go swirling out to foul the delicate light-pipes; the rest to be sucked into the tube which had once carried fresh air to the cell blocks.

FUJIO



Gregg Nason slashed at the chlorine pipes with his razor-sharp blade

"We," Nason said, "came up that tunnel. And look at it now!"

MORE than gas was in the twenty-foot bore. Men were there, some in surface uniforms, some in stolen Luvium garb. Men, geared for combat service. Nazis, packed in that tube as far as eye could reach.

"Their main force," Wright breathed. "Massed here to protect the salt mines and the compounders. And to march on Luvium when it was dead." His voice went lower. "Chlorine. A glottis-numbing gas that causes men to rip their throats to shreds in a futile effort to gain air. God!"

No throat was being ripped in that gas-clogged tunnel. No bodies lay crumpled. The Nazis stood at stiff attention, each soldier gripping a bayonet or sword; each glaring through the glassy eyes of a mask.

Two of their number, likewise masked, crouched in the bore's very mouth, breasting the full force of that mighty green cloud. One was slight; twice, he lifted a sun-burned hand as though to brush back a dangling lock of air.

"The paper hanger!" Nason whispered.

The other was gaunt and the tantalizingly slow manner in which he lifted his radium rifle betrayed his identity. One could be certain that a sneer of triumph was upon that scarred face.

All hell broke loose around Gregg Nason. Jack Wright's cry of rage was torn from his lips, swept out into the bubble, buffed through the crumpling air-streams and flung against the ears

of the waiting Nazis. The paper hanger glanced reassuringly upward at the severed chlorine pipes, then nodded at his underling.

Von Block's rifle settled against his shoulder. Jack Wright took three long strides from the tube and stopped. His sword swept up to spin in circles. Twice, its tip scraped the spidery red pipes overhead. Wright's arm snapped forward. The blade left his fingers and screamed through the air. Conflicting currents promptly caught it and dashed it to the floor, feet from its intended mark.

Cursing, Wright whirled and dived for the shelter of the foul air shaft inches ahead of a crimson blast from von Block's rifle.

"That was dumb," Latvu snapped. "Too much wind for casting. We'll split up—"

"I'll take the middle," Dalta squeaked. "Wright, you circle left; Latvu, right. And the rest—"

Wright snatched the mite up and heaved him back over Nason's head into the ranks of the palace guard.

"No place for lightweights!" he growled. "Nason, *you* take the middle. Run low. Only one rifle. One of us should get through. Jump!"

NASON tore free of Elav's arm. He jumped—but much too suddenly. His feet tangled. He plowed headlong into Latvu. The Cheerful crashed into Wright. Already running, both men went down in a writhing heap. Nason flung up his right arm for balance, forgetting again that hand held a sword.

"Look out!" Elav screamed.

The swinging, razor-edged weapon sliced two overhead pipes apart like spaghetti strands. A mad hissing suddenly stung their ears.

"Stumble-hoof!" the girl raged. "Weren't we dying fast enough?"

"Shut up!" Nason yelled back. "It isn't chlorine. These pipes are red. Wright said: green for chlorine; red for hydrogen—"

He stopped, jaw so wide his speech converter membrane sang a hymn of protest in the foul gale which was sweeping past them into the vast, chlorine-choked Booster Bubble.

Latvu kicked himself free of the groaning Wright and bounded to his feet to shriek at Nason,

"When this is over, I'll cut your crazy head clear off—"

Nason's jaw snapped shut. His eyes were slits of purpose. He sprang high of the floor, his sword swinging in a vicious arc.

"No!" Latvu gasped, recoiling.

"Stop him!" Wright suddenly screamed.

"Alien-born," Elav wailed. "Don't do it!"

The Luviumians behind, with a wildly-protesting Dalta safely locked amongst them, lunged to stop the berserk surface man.

But Gregg Nason's sword was already descending. Like a hot poker hissing through sheet ice, that racing blade mowed through the snarl of red-coated pipes at the tunnel's mouth. One, ten, twenty of the half-inch tubes sheared away beneath the rushing steel. Cut ends curled. Invisible gas hissed out into the foul air stream, roared on into the Bubble's whirlpool.

And Nason flung himself out of the bore and into the open, in sight-range of rifleman von Block and his paper hanging companion.

There, Nason stopped. He dropped his sword. He spat out the teeth-shelled speech converter and lifted his hands to his mouth, megaphone-fashion. His wet tongue snaked between his lips. And then the stocky youth from a world Luvium had denied

existence blew a racking blast with tongue and lips straight at the massed Germans.

"That for you, Adolph!" he howled.

THEN, squealing like a kid being chased by a cop, he whirled and dashed madly back for the tunnel. And those within it could plainly see the insane grin splitting his desert-burned face from ear to ear. And hear him shout,

"I did it! I did it! Yippy! Right in Der Fuehrer's face . . . Back, you sons of the underworld. Get back you hellions. Get back up that tunnel if you want to—"

And then he tripped over his own feet, dived head first into the floor and went skidding into the shaft's mouth on his face, one whisker's breath ahead of the fiery crimson blast from von Block's radium rifle.

"Back!" Nason gasped, somersaulting to his feet. "Back—"

And suddenly he was running on hot, stifling air with the back of his Luvium toga already afire. Tongues of flame licked past his blackening sides, straight for a tangle of arms, bodies and legs which had been Luvium's finest.

Waves of skin-shriveling heat bombarded that pile. The stench of singed hair watered every eye. The pile-driving concussion of the first mad explosion all but crushed skulls. Ears went numb under a succeeding series of blasts, each of which rivaled that of colliding universes.

The Booster Bubble was a ball of churning flame. The filter post was a molten river; the walls were white hot seas. Where von Block, the paper hanger and the Nazi army had stood there was only a greasy grey blot upon the edge of a frightful sun.

Blinding yellow coronas were lapping up every air tube. Gregg Nason felt those searing streamers eat hungrily into his back. He fell, writhing. An ethereal face drifted out of the smoke and flame. Elav, The Fair. Her hair was charred ashes; her face beet-red. Blistered hands fisted into Nason's burning toga.

Then, he was being dragged back from the rim of that holocaust. Back . . . back . . . back . . .

CHAPTER VIII

SWATHED like a mummy in bandages, a scowling Gregg Nason looked up from his jewel-crusted cot in the Palace hospital ward.

"Fifty men," he said, "and twenty rifles and three death rays. That's all I'm asking. And it's precious little, considering—"

"Fifty Luviumians," Jack Wright said, smearing a greenish salve on his burned arm, "wouldn't live to see the surface. Luvium has no pathogenic bacteria. The surface has. Disease bacilli would gut a Luviumian's unprotected body before he reached Zandu."

"Then, dammit, the weapons!"

Latvu, limping badly, came grumpily up the ward's main corridor.

"The Dedul says: no weapons. Says you'd stumble, lose 'em and bang! here would come the beelines again, smashing away at Luvium."

Nason bristled. "You tell that shy little pigeon—"

"You tell him," Wright interrupted. "But get set to run. He isn't shy any more. The fight did things to his libido. Dalta, The Inquisitive, is upstairs in the Council Chambers, spitting out verdicts faster than a traffic court judge with ulcers."

"Fine business!" Nason raged. "I save Luvium and—"

"*Saved,* he says!" Latvu growled.

"But I did."

"So who couldn't? Hydrogen. Highly inflammable."

"The hydrogen that might have burned," Nason said coldly, "wouldn't have charred a marshmallow."

Wright stared. "Then, what—"

"The mixture. The hydrogen-chlorine mixture in that bubble. That's what exploded under the radium ray and killed the Nazis and created a backwash strong enough to foul out those salt mine compounders." Nason's nose curled. "Stumble-hoof I may be. But not in the head. I learned about this hydrogen-chlorine-hot flame stuff *before* I was six."

"Which reminds me," Latvu said. "There exists a little matter concerning Elav, The Fair, which you and I—"

"The surface," Nason said hurriedly. "I've got to run."

Wright scowled. "You aren't going back?"

"But I am. For one thing, there's a war on. Maybe we tagged the paper hanger in that bubble. Then, again, maybe it was only a double down here to pose for propaganda pictures. It's been done. I've got to find out. And," Nason added, "in a hurry."

"But you'll return?"

"Return!" Nason gulped. "Return to Luvium? Come back to this screwy hothouse? Oh, no, mister. Believe me, you haven't got a thing down here—not a thing," he repeated vigorously, "that would ever interest me."

"I lied better than that when I was six!" a voice said scornfully. Elav, The Fair — red-cheeked, flashing-eyed and with a white gown whipping about her singed legs—was striding determinedly up the corridor.

"G'way!" Nason gasped in horror. "G'way, you bombshell!"

Latvu vaulted to his feet, face twisting with fury.

"No man," he thundered, "can talk that way to my sister!"

"I knew it all the time," Gregg Nason said, weakly. "So maybe I'll come back."

"You'd better," Elav said with emphasis "or I'll come after you."

THE END

(Continued from page 6)

and chemical decontamination squad in an aerial gas raid. In each of these dreams, nothing has been nightmarish, but so realistically faithful and impressively authentic that he feels the actual experience could add nothing. He is beginning to wonder if these dreams, all on separate nights, were not actually tied up somehow with an actual human being's experience somewhere in this war? It's just one of these things we don't understand, but just for the record, we'd rather they didn't happen to us! Have you ever been strafed by aircraft; near-missed by a bomb; driven a submarine ashore and then shelled it to bits; swum ashore with a full pack and tommy gun; bombed a city gas tank; had a tank blown to bits around you; and sprayed live steam at a cloud of gas? Well, we have, and we shudder to remember it—even if it was only a dream! Or maybe we are reading too many amazing stories, and seeing too many movies!

HOWARD BROWNE plans to begin work on his second story of Tharn, the Cro-Magnon, hero of his successful book and AMAZING serial "Warrior of The Dawn" on his summer vacation. We'll be waiting to see it, Howard!

IT IS reported that the Owens-Illinois Glass Company is ready to announce the introduction of a paper cap for coffee containers, and for jars of other dry types of foods.

The new cap will be capable of holding a vacuum, and is described as a screw-type. It is the result of intensive research by the container company to develop a closure that would satisfactorily replace the rubber and metal cap rings—so important work in a day of restrictions placed on the use of critical materials.

An effort is being made, too, by constant experimentation, to adapt the new type of glass container closure for use in foods other than those of the dry type. Should the company's scientists succeed in adapting this type of closure for use

under high pressure to which canned fruits and vegetables are subjected in processing, glass-packed fruits and vegetables would appear. These would replace the canned type at an accelerated rate, with expansion limited only by the productive capacity of the glass container industry.

Modern ingenuity finds a new and more powerful "necessity" as the "mother of invention"—total war.

"HE'LL probably live as long as an elephant" is an erroneous statement when a long life is to be indicated by that sentence. Officials of the Fish and Wildlife Service, United States Department of the Interior, declare that stories about animals with average lifespans of 100, 150, or even 200 years are usually a figment of someone's imagination. With the possible exception of the tortoise, man probably has a higher life expectancy rate than any other animal known.

It is believed that long-lived animals like the elephants are credited with being much older than they actually are because of mistakes in records handed down from one owner to another. It is also believed that animals live longer in captivity than they do in the wilds.

The life span of the elephant has been set at 100 years or more, but records show that on the average it is between 40 and 50 years. As reported in the Journal of the Bombay Natural History Society in 1933, the oldest record for an elephant in captivity is 78 years.

Although cases of extreme old age have been reported for the tortoise, the average life span is 50 or 60 years.

Falcons are believed to live only 7 to 10 years, although they are often credited with living as long as 162 years. Vultures said to live 118 years, actually live only about 15 or 20. Golden eagles live to be 18 or 20 instead of 100 years old. Swans live 15 instead of 100 years, geese—16 to 20 instead of 200 years, parrots live about 17, instead of the reputed life span of 200, and crocodiles about 10 years instead of the acclaimed 40 years.

ALCOHOL is steadily becoming a more and more vital war substance since it can be converted into smokeless powder and synthetic rubber and every available source must be utilized.

Because the cost of distilling the alcohol was so high, millions of gallons of the precious fluid were being poured down the drain in many industrial plants and through the destruction of sawdust, cornstalks, straw, which could become alcohol.

However, Dr. Donald F. Othmer and Dr. R. L. Ratcliffe of the Polytechnic Institute of Brooklyn have developed a process to save this alcohol at a cost that makes the distillation "pay." First the sugar of the agricultural wastes are fermented into alcohol which is rather thin and watery. This is the same type of alcohol that is thrown out in the industrial plants. This alcohol solution is mixed with fusel oil which dissolves alcohol but will not mix with water. Then the fusel oil and alcohol mixture is further treated and separated into alcohol and fusel oil. This process will increase the alcohol output of this country a great deal at a time when it is most needed.

WHERE is the geographical center of the United States? According to the United States Coast and Geodetic Survey, the approximate geographical center is in the eastern part of Smith County, Kansas, at latitude 39 degrees, 50 minutes, and longitude 98 degrees, 35 minutes.

But there is really no known scientific method by which the exact geographical center of the United States can be located. The geographical center of an area may be defined, in a general way, as that point on which the surface of the area would balance if it were a plane of uniform thickness, or in other words, the center of gravity of the surface. Thus, anybody can find the geographical center, roughly, if he will take a good outline map of the United States proper and balance it on the point of a needle—not a very scientific and valid method in the case of a map of the United States.

This balance point should be in the northern part of Kansas. It can easily be seen why this method is not absolutely correct, all maps, no matter how carefully prepared, are somewhat distorted. The United States is very irregular in the outline. Besides, it is impossible to get away from the fact that any land area is part of a spherical surface.

Frequently confused with the geographical center is the North American *datum*, which was established by the Coast and Geodetic Survey for triangular purposes. This point is at Ogden, Kansas, at 39 degrees, 13 minutes, and 26.686 seconds west latitude, and 98 degrees, 32 minutes, and 30.506 seconds north longitude. The datum, then, differs approximately 37 minutes in latitude and 3 minutes longitude from the United States geographical center——Smith County, Kansas.

IT IS the general opinion among medical scientists, says the United States Naval Medical School, that shaving in itself does not make the beard grow faster and that cutting does not increase the speed with which hair grows.

There is a definite rate of growth in the hair of normal and healthy persons and this growth is not affected by mere cutting. But shaving tends to irritate the skin somewhat and causes an increased flow of blood to the section being shaved. Consequently more nourishment is carried to the hair follicles and this causes the beard to grow stiffer and heavier. It may also make it grow faster, although there is no evidence that the speed of growth is actually accelerated.

In other words, then, it is not the cutting of the beard that makes it grow stiffer and heavier, but irritation of the skin during the process of shaving. Take your choice, youngsters! *Rap.*

WAR WORKER 17

Mary's job was helping to turn out the weapons of war—but then suddenly she found herself snatched into a world where the menace of war had been ended!

by **FRANK PATTON**

MARY SWEENEY was fighting too! Not with a gun; but she was fighting to get those guns (mounted on planes) out there to the front where Jimmy Wright could use them to fight. Mary Sweeney was one of the women engaged in war work. She operated an electric overhead crane in an airplane factory. Her number was 17 . . .

"There's another one for you, Jimmy," she was saying now. She looked down from her perch in the crane cab at the finished bomber being wheeled toward the great doors of the plant. Jimmy Wright was the man she was going to marry, when he came back from licking the Japs . . .

For a moment her eyes took on a faraway look, and in the gleaming halo of reflected sunlight from the surface of the shiny new plane as it moved through the great doors she saw his grinning face, his curly hair, his freckled nose . . .

She jerked back to reality with the ringing of the signal bell.

"Get busy, Mary!" she said aloud. "More wing-sections to be moved down the line!"

Quite a few more wing sections had made their impressive way through the air over the maze of construction littering the floor of the huge factory when Mary heard a voice shouting up at her from below. She looked down.

"What did you say, Cal?" she called.

Cal Thompson was shop foreman. He knew Mary better than most of the workers, because he owned the little bungalow right next to where Mary roomed, and he gave her a lift each morning and evening.

"Guess who's come home!" he yelled up at her.

Mary's heart leaped. Her lips framed, but did not utter the word lest her hopes be too high.

"Jimmy . . .?"

Thompson grinned from ear to ear. He nodded vigorously and walked on, peering into half-formed fuselages, climbing up beside a girl working in a bomber's top "blister" and nodding approval of her work.

Mary's heart was singing, in rhythm with its quickened beat.

"Jimmy's home! Jimmy's home! Jimmy's home . . ."

And then it happened.

A giant swinging chain began to glow redly, then with incredible swiftness turned to blinding white-heat, melted and dropped its burden to the floor. A wave of electrical shock and a brilliant bluish light flashed out toward the cab of the crane, enveloped it.

Mary screamed, but even to her own ears the scream sounded far away and queerly muffled. Then, as though a

Mary Sweeney herself was the heroine in this reproduction of her thought!

giant hand had closed down on her, blackness came, and she knew no more.

HOW long the blackness lasted, Mary didn't know. In fact, it didn't seem to her to have lasted any time at all, because almost instantly her eyes began to register the scene around her again. Everything seemed illuminated by a weird reddish light, as though she were wearing glasses with red lenses. Yet everything was crystal clear, and Mary was reminded of her treasured set of wine-colored Cambridge crystal-stemmed goblets. Jimmy had given them to her sort of as an engagement present; he'd said it was because he'd gotten a bargain on the ring, and had a little money left over . . .

All thoughts of Cambridge goblets and Jimmy abruptly fled her mind as the scene about her registered. At first it seemed—

"The machinery!" she gasped. "All the machinery's been taken out of the . . ."

And then she realized this great building wasn't the factory at all. True, it was very similar, in a way. It was long, high-roofed, and its walls were quasi-opaque glass, or something like glass, except that the light that was coming through it was wine-red—or was it the panes themselves that were wine-red? Mary didn't know.

Mary was lying on a large circular mat of what seemed to be very soft and resilient sponge rubber. And beyond the circular mat was a queerly woven coil of intricate wires that formed a perfect circle around her. Cables led from this coil to several monster generators which she hadn't seen before because they were behind her.

"Oh!"

Mary's little scream came from her startled lips as she saw the strange figures who were standing beside those generators. Tall figures, human, but somehow not human, dressed in vivid orange robes that fell straight to the floor from level shoulders so that their bodies presented almost the appearance of solid columns, stood silently watching her.

Filled with a horrible fear, Mary struggled to her feet and stood swaying dizzily, facing the orange-clad figures. There were three of them, she saw now, and their bodies seemed to grow taller before her eyes, loom over her, then shrink again as waves of dizziness swept over her. She tottered on her feet, and clasped her hands to her temples.

As she fell, she felt the rubber pad on which she stood yield to the rush of feet nearing her, and felt a strong arm catch her. Then she was lifted and carried. The lifting motion was soothing, and somehow it swayed her fear away. It seemed there could be no harm in this comforting motion, this capable pair of arms that was carrying her firmly yet gently along . . .

SHE opened her eyes, to stare up at the face of the man who was carrying her. Yes, he was a man. Funny how her first impression of these orange-clad men had been one of unhumanity. True, there was something odd about his face—his eyes for instance; they were a jewel-like ruby in color, with ebon-black pupils. Even the portion of the eyes that should have been white was crimson. Yet, in spite of these amazing eyes, the man was handsome. Mary found herself admiring him for an instant . . .

Abruptly she felt herself flushing with embarrassment, and at first failed to realize why. Then, with a shock that struck the strangeness of all about her back into her heart, she knew it was

because *he* knew she was admiring him. Knew, and liked the knowledge!

She struggled in his arms, and he set her down on her feet. He didn't speak, but his questioning look was obvious. Would she like to walk?

"I feel better," said Mary in answer. "I can walk okay."

The handsome crimson-eyed stranger smiled and pointed down the great length of the building toward a door that led outside. That was the way he wanted her to walk.

Mary walked along, acutely conscious of the man at her side, and of the other two walking along behind them. But she was absorbed, too, in staring about her. This huge building—what was it? And *where* was it?

The floor seemed to be made of glass, yet it had a satiny, soft smoothness that certainly wasn't glass; and her heels made no sound as she walked along. The walls were composed entirely of the red semi-transparent panes, beyond which she could see nothing except the looming suggestion of either great masses in the distance, or less imposing structures immediately nearby. It was hard to tell which . . .

The building was entirely empty, except for the apparatus which lay behind them; the apparatus on which she had been the central figure just a few moments ago. What purpose such a giant building; and almost empty?

They emerged into the outside daylight now, and then all sense of the familiar fell away from Mary. This sunlight . . . !

Nowhere on Earth had there ever been sunlight like this! Light, red as blood, came from it. Every object in sight was brilliantly and clearly sunlit in crimson that was at the same time terrifying and restful. It was extremely bright, yet didn't hurt her eyes.

Even when she turned her head upward and stared directly into the sun there was no painful contraction of the pupils. That sun! It was twice as large as the sun she had been accustomed to, and it seemed to flicker in waves of red very much like the red glow that Mary had often delighted in looking at when she was a child by the simple expedient of staring at the sun with lids closed.

Where on Earth was she?

"Oh God," whimpered Mary. "This isn't Earth!"

SHE saw now the great city spread out before her. Obviously this wasn't Oakland, California! Fantastic buildings, set widely spaced with park-like areas between, towered into the heavens. A mile apart each of these buildings was. And the base of each was a vast double arch, through which two levels of traffic ran, from all four cardinal points of the compass.

The roads were miracles of traffic efficiency, and all composed of the same satiny-soft, smooth substance as the floor of the building from which she had just come. Strange vehicles moved at an orderly and regulated pace along these roads, perfectly managed by traffic controls that seemed automatic, because at no time did any vehicle swerve from an orderly progress in any manner that might indicate the possibility of an accident.

The figures of countless people, all dressed simply, moved through the park areas, strolling about calmly and happily. Other figures rose into the air without any means of locomotion, and moved at greater speed than the ground vehicles, usually to one of the many graduated levels on the building, to disappear inside.

Atop each building was a tremendous metallic-appearing ball which sometimes flashed brilliantly violet, or

glowed in a range of color that covered the whole spectrum, with one exception—always the colors were tainted by the red light of the weird sun overhead, which caused surprising combinations.

Over all this incredible scene lay the ruby light of the sun, lighting things perfectly, and restfully, yet so predominantly with a reddish cast that Mary's sensation of exotic other-worldness grew morbidly oppressive. Had it not been for the fear that surged wildly within her, she might have considered the whole scene one of incredible beauty.

She turned wildly to the man who had carried her.

"Where am I?" she asked. "What is this place? Please tell me . . . !"

The man looked at her, spoke a few words in a language she could not identify. Then he smiled, and the smile held such assurance and such promise that no harm would come to her that Mary felt her fears fall away from her. They were replaced now by an all-consuming curiosity that flamed to increasing heights because there was no one to answer her questions.

Then once again Mary screamed—because she was no longer standing on the ground, but shooting upward, through the air, toward the top of one of the most magnificent of all the tremendous buildings of this vast city in nowhere!

BEFORE Mary had time to be afraid of the depths below her, and to get over her shock and surprise at her mysterious and abrupt flight into the air, she found herself standing high on the balcony of one of the giant buildings. From her vantage point she could see the whole city stretching off perhaps a hundred miles toward the horizon.

But she had little time to look about, for she was led into the interior of the building. Almost instantly she found herself admiring the immaculate and streamlined furnishings, which were more exotically lovely than any she had ever seen.

"How lovely!" she exclaimed. "What I wouldn't give to own such an apartment back in Oakland!"

Her guide smiled at her; and as if he sensed what she was talking about, waved a hand at the surroundings and nodded at her. She smiled back and nodded vigorously.

He led her now through a door into a room which was another miracle of furnishing, but this one was obviously furnished with an eye to technical utilization. It was most certainly a laboratory, although for the life of her, Mary could not have decided whether it was a chemical laboratory, an astronomical laboratory, or a super-scientific movie and television experimental room.

There was, among other things, what seemed to be a movie projection screen, a projection camera of a fantastic design, and comfortable lounge seats grouped before it. There were strange helmets that looked like gas masks without the gas-filter cannister attached. Wires led from them to unfathomable machines grouped around the room.

The three tall men in their striking yellow robes took up stations around the room, set various machines in operation. An almost non-existent humming came to her ears, and various tubes bloomed into lovely glowing light.

Mary felt a nervous sensation sweep over her. What was going to happen to her now?

The man who had carried her, indicated that she be seated in one of the comfortable lounge chairs, and then placed one of the helmets over her head.

She found herself looking at him through tinted lenses that made every feature leap out in startling clarity. Mary looked around the room, and was amazed at her own eyesight. All at once she realized that the eyes she had always considered so good — twenty-twenty vision — had really been very imperfect. They had been out of focus, faulty in register of color and distance value, and incapable of comprehending the light-power available.

One of the men spoke to her now. One word . . .

"Tell," he said.

She started.

"You speak English!" she cried. "You can understand English?"

His eyes lighted up. He repeated his first word and added two more.

"Tell, speak English!" he commanded.

Mary realized that he knew no English, but had merely selected from memory the one word that she had previously spoken which came nearest to what he wanted her to do. He wanted her to speak *more* words! More words so that he could select them and speak to her more intelligently. What sort of intelligence was his, which out of the few words she had spoken could select the one which came nearest to expressing what he wanted. Tell!

Mary told.

SHE spoke rapidly, speaking all the words in any sort of sequence that made a kind of sense. And her listeners drank in everything eagerly.

"My name is Mary Sweeney. I work in a war plant; help make planes, motors, guns—you know. We are engaged in a war. We use guns to fight the war. For instance, hand weapons, a revolver, used to kill at close range. Then larger guns. . . ."

Mary went on:

". . . these helmets you have here. We have things like that too. Gas masks, to keep us from dying in gas attacks . . . masks are also used by criminals to rob people and prevent identification . . ."

For perhaps ten minutes Mary spoke of everything that came to mind.

". . . children go to school until eighteen years of age. At twenty-one they become of age, as we say, and are permitted to participate in the democratic right to vote their own governing officials into office, and make their own laws and law enforcement officers. . . . Our numerical system is the multiple of ten system. One—two—three—four—Ten—twenty—thirty—"

Finally Mary stopped speaking, certain that she had given these strange men a great portion of her vocabulary. Now, would they be able to use it?

"I hope you know what I've been talking about," she concluded breathlessly.

The tall man who had carried her spoke.

"We certainly do understand you," he said with a smile. "You are a very clever girl. And we are more than surprised at the advanced civilization from which you come—and e x t r e m e l y shocked to discover that you use that civilization to wage war. In fact, we are so shocked that we have decided that perhaps we can do something to remedy the situation, perhaps only by giving you a complete picture of our own civilization, and the means we use to insure it, before sending you back."

Mary leaped to her feet with a glad exclamation.

"You're going to send me back!"

"Of course. We have no desire to harm you. We only delve into other universes as a matter of learning more about the things we know exist outside our own particular vibratory sphere.

Never before have we managed to transfer so intelligent a being to our laboratory for study. And your cooperation has been wonderful. From you we have learned enough to satisfy our search in your particular vibration range. When we return you, we will bother your world no more."

Mary's voice was awed.

"I've read fiction stories where things like this happened, but I never believed them . . ."

The tall man rose.

"There are so many things we don't believe, but which really do exist. We are finding that out to a greater degree every day. But come now. Perhaps we can return the favor you have done for us and show you the wonders of our own world . . . Oh, by the way, would you like to see what you told us?"

"See what I told you?" Mary was mystified. "But how . . .?

The tall man waved to the screen.

"Watch," he directed.

ALL at once Mary saw herself on the screen. She was in the war plant. She saw herself go through a multitude of actions—saw vast and swift pictures of all phases of her work, her surroundings, the war. All these things she remembered now had flashed through her mind as thoughts even as she spoke. Much more than she had said had been recorded on this screen. . . .

Suddenly she uttered a cry of amazement, then horror.

"Oh! I never did such a thing!"

On the screen she saw herself, wearing a black mask and holding a revolver in hand. And as she watched, she saw a dramatic scene from a play she remembered, except that she herself was in the leading role — and saw herself shoot a man!

"We realize that," said the tall man, smiling. "Your mind is vividly imaginative, and you gave us a marvelous cross-section of almost every type of human being in your civilization—perhaps unconsciously, it is true; but all the same, you did it. We presume that your own presence in almost every scene is in the nature of an escapist complex. All imaginative persons inject themselves into every situation."

Mary watched a literal encyclopedic description flash visually across the miraculous screen. When it was finished, she had blushed many times.

"If I had known *all* my thoughts were being recorded . . ."

The tall man smiled.

"We are glad you didn't."

He took her hand and led her toward the door. The other two men remained behind.

"Where are we going, Mr. . . ." she hesitated . "What is your name, anyway?"

"Call me George," he said. "My true name would mean nothing to you."

"All right, George," she smiled. "Now, where are we going?"

He waved an arm at the landscape before them as they stepped out onto the balcony.

"To see the world!" he said dramatically. "A world where there are no wars. I hope that what you see you can carry back to your own sphere."

Mary frowned.

"I'm afraid no matter what you show me, it won't help. You see, in my world, force is such a big word."

George nodded.

"Yes," he said. "I have seen. But sometimes a dream, if repeated enough times, can become reality. And let us say that what you see now, you will consider as a dream. Perhaps in the telling, the dream may have a chance in your world to become real also. After all, our world is the result of the hopeful dreams of our forebears. They

imagined this peaceful world, and later made it so. We had our period of wars too—long ago."

FOR the next few hours, Mary saw things that were almost impossible to describe. She saw a vast globe, studded with great cities where millions of people lived in perfect harmony, yet in perfect freedom. Individuality was the rule, rather than the exception. And yet, the whole vast globe was one unit of civilization. Where work was to be done, all did their share. And there was no such thing as money—nor capital and labor —nor rich and poor—nor favoritism and party politics.

It was while passing over a city that Mary noticed a small plane flying very swiftly. From it dropped tiny pellets, directly toward the tops of buildings. And with incredible accuracy, perfect accuracy, these little pellets fell into tiny shafts atop the building and were swallowed in their depths.

"What is that?" asked Mary, wonderingly.

"You mean the communications plane?"

"Communications?"

George nodded.

"You would call that plane the 'mail man.' It is automatically controlled. It covers a pre-arranged route, and if any 'mail' is addressed to a particular person in a particular building, it is released from the plane, and dropped into the main communications shaft. Here it is sorted by an automatic arrangement which delivers it to the proper person. We can send an object to the most distant point on the planet within an hour, by this means. We are working on radio transmission of matter now, and perhaps soon this more primitive means will also be eliminated."

Mary gripped her guide's arm.

"Did you really mean it when you said you were going to send me back to my own world; and that you hoped we might eliminate wars?"

"Certainly."

"And you realize that to the civilization that is ours, force is a far more effective means in establishing peace right now than education and dreams?"

"Unfortunately for your civilization, yes."

Mary pointed to the disappearing mail plane.

"Then give me the mechanical details of that delivery plane, and the means used to drop the mail so accurately into the mail shaft of each building!"

George lifted his eyebrows.

"But how can such a device help to make your world peaceful?" he asked in astonishment.

Mary looked at him.

"Before I tell you, will you promise faithfully to give me the information?"

"I see no harm in it. Yes, I promise."

"Well, George, those planes I help make in that factory on my own Earth, are used to drop bombs, destructive, killing bombs. They are guided by what we call "bomb-sights" which are regrettably inaccurate. But if we had this mail-dropping device of yours, we could end the war in a few months and, ever after, enforce peace in our world with it!"

George looked astonished, then reflective.

"Yes," he said with dawning conviction. "You could! And I know that your nation, and your allied nations, want peace. It is your enemies who start all the wars. And I saw, too, how your nations plan to prevent future wars by education, and foresight . . . Yes, Mary, you are right! You shall have this device! And the sooner the better. Come, we must return, and send you back."

LATER, as they flashed through the crimson sky of the strange planet, on the invisible force that needed no mechanism, George looked peculiarly at Mary several times. Finally she noted it.

"What is the matter?" she asked "Why do you stare at me?"

They were nearing the huge building they had left earlier in the day now.

"Does your hair always change color as the day passes?" asked George curiously. "And your skin . . ."

Mary was startled. She touched her face with her hand, and a shiver of horror ran through her. He face felt strangely wrinkled under her palm. And she saw now that her hand looked strangely emaciated . . . as though it were the hand of an old woman . . .

"What about my hair?" asked Mary, in trembling tones.

"Why, it's almost white," said George. "But you look alarmed . . . Then this isn't a natural phenomenon!" There was consternation in his voice.

"No," faltered Mary, "it . . . it isn't . . ."

They reached the building now, and Mary's legs trembled as she walked into the fascinatingly furnished living quarters. Trembled with a weakness that was not entirely that born of the sudden fear that was sweeping through her body.

And as she faced a mirror, she uttered a hoarse cry and covered her face with her hands.

The figure that had looked at her out of the mirror was that of an old woman! A woman of perhaps sixty years of age!

"Old!" she moaned. "I'm an old woman! This world of yours . . .!"

Once more she was conscious of George's strong arms carrying her hastily into the laboratory.

Perhaps an hour later the three otherworld scientists had completed a complex examination of her. And now George spoke to her as she sat, tired and old, in one of the lounge chairs.

"OUR world," he said, "is different from yours — in Time. Here, Time moves at a different rate. It would seem that a day here, in our world, is equal to forty of your years. Thus, what has happened . . ."

"You mean I've actually aged forty years . . ." Mary's tragic voice interrupted his ". . . in a day?"

George looked very perturbed.

"Yes. And now, if we send you back . . ."

"I'll be sixty years old?" faltered Mary. "An old woman, even in my own world . . .?"

George nodded dumbly.

Mary's heart almost stopped beating in her breast, and a great wave of constricting darkness and terror beat its way in on her consciousness. But she fought it off, and after a few moments regained a composure born of sheer shock. Her body seemed numb and cold.

Abruptly she struggled to rise to her feet.

"Quick," she said hoarsely. "Send me back. Send me back with the secret of the mail plane . . ."

George leaped to her side, held her arm, steadied her.

"If you stay, perhaps we can find a way . . ."

"No. If you don't, I'll be dead before another day. And I must get back with that secret. My life means nothing beside that . . ."

George looked stricken.

"I can't begin to tell you how sorry we are. We had no suspicion of such a horrible thing. Never have we encountered such a strange . . ."

"Send me back!" Mary said wildly. "Send me back . . ."

George leaped into action. A quick barrage of commands went to his two companions, and then he took Mary once more in his arms. She was conscious of swift flight through the air, then of her presence in the vast long room where she had regained consciousness to find herself snatched from her own world.

She recovered enough now to make her own way, and in a few moments stood beside the great circular mat of sponge rubber with its surrounding wire coils and its great generators. There she waited, her aged limbs trembling weakly under her.

The other two scientists arrived, bearing with them a small machine, and a bundle of diagrams and specifications. They were complete in every detail, and in English!

"How . . .?" began Mary in a falsetto voice, then stopped. "Yes, of course, you can do many things that seem miracles to me."

George lifted her, carried her to the center of the rubber disc, then gripped both her hands in his. The other scientists placed their burden on the rubber disc.

"I would rather that it was my life that we had wasted," said George. "Never again will we tamper with other worlds. We called ourselves civilized! We are worse than beasts! What right had we . . .?"

Mary put one hand to his lips, stopped him.

"You couldn't have known," she said. "Knowledge is always gained that way —at the cost of sorrow and pain. And it will be more than worth my own youth to end wars for all time on my Earth. I don't regret giving my years to save the millions of years of life of other human beings."

George bowed his head humbly.

"Perhaps someday we, here, will realize what real civilization is," he said. He stooped, kissed her on the forehead, then turned and stepped off the circle of rubber. Mary watched as he made his way to the machines, and turned them on. As many-colored tubes lit up, Mary smiled at him and waved a thin, blue-veined hand . . .

Once more that vivid flash of light, and the darkness of unconsciousness swept over her. All went silent.

"GLORY be! How did you get here, old lady!" The stupefied astonishment in Cal Thompson's voice penetrated Mary's consciousness as though it came from a great distance. With an effort, she struggled up from the depths and opened her eyes. She stared weakly up from where she lay on the factory floor amid a tangle of debris.

All around her were shattered machines, splintered wreckage of wood supports, a smashed airplane motor, the remains of a great metal chain, fused as though struck by an all-consuming lightning. In the air was still the heavy cloud of smoke, and the dust of crashing objects.

"How'd you get here?" Cal Thompson said again, bending over her. "What on Earth . . .?"

Mary stared up at him.

"Cal . . ." she began weakly.

Thompson stopped, stared at her in blank surprise.

"You know me?"

Mary nodded.

"Yes, Cal. Do you recognize me?"

Thompson shook his head.

"Can't say's I do. But forget that. Are you hurt, old lady? My God, how did you *get* here! You might have been killed . . ."

"I'm not hurt, Cal," said Mary in her cracked, aged voice. "But, please, Cal, don't you recognize me at all?"

Thompson put an arm around her

wasn't in the accident. In fact, she couldn't have been. That's right, Mr. Thompson, isn't it?"

Mary became aware of Cal Thompson in the room, and looked at him.

"Yeah," said Thompson in strained tones. "She couldn't have. But I'm glad you're sure there's no injury. I didn't want to take any chances . . ."

"I'd advise you to take her home," said the doctor. "She's okay."

"Yes," said Thompson. "I'll be glad to . . ."

Fifteen minutes later Mary was seated beside him in his car.

"Where are we going?" she asked dully, then her eyes took on a frightened light. "Not home! Oh, Cal. Not home! I can't go there!"

Thompson shook his head.

"No, Mary. We aren't going there. If you feel entirely able, we've got to see the war department officials. They are awfully excited about that strange machine and diagrams we found beside you in the plant. I told them you mentioned their presence before either of us saw them—so you knew they were there . . ."

"Yes," said Mary. "I knew. And we've got to see the officials right away. They're terribly important."

"That's what they said to me. And that's why we're going down there now. But how about explaining some of this to me? I don't know what terrible thing happened to you, except that somehow that accident made an . . ." he hesitated, and Mary whitened.

"Don't say it, Cal," she said slowly.

He went on.

"From what you said, I got the idea something stranger than that had happened to you. But I can't imagine what. Except I do know you weren't on the floor where I eventually found you, nor was that machine and those drawings."

"I'll explain the whole thing when we get to the war officials," said Mary in a drawn, tired voice. "I don't think I could go over it twice."

"Sure, Mary," said Thompson, his voice troubled. "I understand."

AN HOUR later Mary and Thompson sat in the office of the Oakland Area Military Intelligence Unit, before two serious-faced men whose eyes were alight with an amazed exultance as they looked at the strange metal machine on a desk before them, and peered through the series of complex diagrams spread out beside the model.

"Incredible," said one, "but we can't do otherwise than believe every word of it. The bomb-sight is here, and I know enough about these things to realize that it's the most terrific thing that ever hit this man's army. But just to make sure, I've sent for some experts on the Norden sight. They can confirm it."

"You won't have to worry about that confirmation," said Mary. "I've seen that bomb-sight work. And I'm sure it'll deliver bombs just as accurately as it does mail in that—that strange world where the sun is red, and there are no wars."

"Can't you tell us more about that world?" asked the other official earnestly. "Maybe we can learn still something. Those metal coils and that rubber disc . . . what'd they look like?"

Mary shook her head.

"George said one thing before he sent me back to my own world," she said, "which I think was the wisest thing he ever said. He promised that never again would he or his fellow scientists delve into other worlds and trespass on the rights of other living beings as he did upon me. That's why I'm not going to give you any clues that might enable you to do the same thing. What

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might happen to one of those innocent people, snatched from their world, into ours? Would you want to do something like what has happened to me, to another? Not if I can help it!"

Mary's eyes misted with tears. She got to her feet, and looked at Thompson.

"Can we go, Cal?" she asked tremulously. "I . . . I think I'd better get somewhere where I . . . I can have a good cry."

"Of course, Mary," said Cal Thompson huskily. "If it's all right with you gentlemen . . .?"

"Certainly," said the military intelligence official. "If we want to talk further with Miss Sweeney, we'll let you know. But I think not . . . we've got plenty of work to do now—setting a plant in operation to manufacture these bomb-sights. And when we do—look out, Japan!"

Thompson put an arm around Mary's shoulder and led her out.

OUTSIDE, in the car once again, he spoke.

"What about Jimmy?" he said.

Mary turned swiftly, an agonized look on her face.

"He mustn't know!" she exclaimed. "Let him think I was killed, even my body destroyed in that ray. I couldn't bear to have him know—to see and pity me. He couldn't love me now; only pity me. That would be torture I couldn't stand!"

Cal Thompson looked at Mary for a long moment, and as he looked, a peculiar look came into his eye.

"Mary," he said, "do you mind if I put down the top, and we take a drive in the sunshine? I think it'll do you good. You look pretty pale. Little sun might pep you up."

Mary sighed.

"It would be nice," she said slowly. "Might get the chill out of my bones." She smiled a bit. "Now I know what it means to be 'old folks'!"

Thompson leaned over, patted her hand, then proceeded to put down the automatic top of his convertible. Once it was down he looked at Mary's white hair critically, then settled back in the driver's seat and devoted himself to driving slowly out into the countryside.

Fifty miles later he looked at the gasoline gauge and grunted.

"Far's we can go on an A card," he said. "It's back to town for us."

Mary smiled at him and nodded.

"It's been wonderful," she said. "I feel much better. But where am I going to go when we get back to town?"

"To my place," said Thompson firmly. "You're going to bunk there for a few days. Then we'll decide after that where you'll go. Besides, there's a little something I want to try out . . ."

THE next morning Mary was awakened by the sound of the curtain going up in her bedroom. She opened her eyes to find Cal Thompson and his wife in the room. Cal was standing beside the bed looking down at her.

"Mary," he said, "you remember what George, that fellow in that world with the red sun, told you about the difference in Time between our two worlds?"

Mary sat up in bed, surprised at his question, and answered.

"Why, yes," she said. "But why?"

"I've been suspicious of that all along," said Thompson. "Yesterday, when we came out of the intelligence office, I saw something about your hair in the sunlight . . . that's why I suggested a long ride in the sunshine. I wanted to see if my suspicions were right. And I think they were. But I

had to wait until this morning, to make sure."

"What are you driving at?" asked Mary in troubled tones.

"Time," said Thompson. "It seems to me that people who live in a world where Time is regulated to twenty-four hours a day, or something like that—I don't know how to explain it—ought to live by the rules of that Time, don't you think? Well, so long as you were in that other world, you were living by the rules of a Time that wasn't natural to you. And now, back in this world, you live by the Time you are accustomed to?"

Mary nodded tiredly.

"Yes," she said dully, her eyes filling with tears. "I guess you're right, Cal. And so, I've got maybe five years of creaky joints and ulcers to live yet . . ."

"Now, Mary," said Thompson bluffly. "Don't be saying that. You got a lot of years left before you . . ."

Mary dropped her head on her knees and burst into tears. For a moment there was an awkward silence, then Mary quieted her sobs and at the sound of quiet footsteps, lifted her head.

"I'm sorry, Cal . . ." she began, then her eyes widened.

"Jimmy!" she said, startled.

Jimmy Wright dropped down on the bed beside her and gathered her into his arms and kissed her tear-dampened cheeks.

"Honey!" he said huskily. "Thank God you're alive!"

Mary drew back, her face pale, agonized.

"Why did he do it?" she asked, stricken. "Why did he do it?"

"Do what, darling?"

"Tell you, call you here. I didn't want you ever to know. I wanted you to think I was dead. I'm *old,* Jimmy. An old woman . . . !"

"Old?" Jimmy Wright grinned at her. Then he got up, crossed to the dresser and picked up a mirror. He handed it to her. "Take a squint into that, honey," he said. "If you're old, I'm an octogenarian!"

DAZED, Mary took the mirror in trembling fingers, trembling fingers that she saw now were smooth and white and youthful. She looked uncomprehendingly into the mirror a moment, then became aware of the truth. Staring out at her were the wondering features of a lovely young girl! Herself!

"Oh!" she cried.

The sound of her voice brought Cal Thompson into the room, closely followed by his wife. Both wore wide smiles on their faces.

"It's that there Time thing," said Cal triumphantly. "You see, there must be laws that regulate the value of Time in all worlds. And the way I figure it, the Time laws in that other world don't apply to people that don't belong to that world. And you belong here!

"You see, I got an idea that was what was going to happen yesterday in the car, when I saw a touch of gold in your hair when the sun hit it. When we got back from the drive I was sure. Your hair was a couple of shades darker, and your face hadn't nearly so many wrinkles.

"You were in that other world only a few minutes, our Time, and when you got back, the natural laws came back into effect, and all that Time that was piled on your body in the other world just sloughed away . . ."

"Cal," said Mary Sweeney, in glad tones. "Would you mind doing me a favor?"

"Sure, girl, what is it?"

"Why don't you and Mrs. Thompson go downstairs and talk it over. I

just don't feel interested in Time right now —except I wish it would stand still! And besides, Jimmy has only a few days' furlough left. That's one Time that's entirely too short!"

Cal Thompson chuckled and turned to the door. He beckoned to his wife.

"You heard what the young lady said," he ordered. "Get going. Time's a'wasting! Time's a'wasting!"

He shut the door behind him.

THE END

BONE

BONE plays a very important role in animal life. Bone permits us to achieve a posture and is the mass around which all the rest is built. The skeleton is not only a support, but a place of attachment of the muscles. The muscles contract and the bone must follow. From this simple pattern, all locomotion of the higher animals proceeds If we look at a bone, we can see that it is grayish-white, some bones being a pure white, others a grayer color.

Under the microscope, the bone looks much different. It is no longer quite so simple, but becomes very complex with many lesser details, but divisible into spongy and compact types of bones. We have both in our human bodies, but the compact is present mostly and is indeed a much stronger type of bone than the spongy. The spongy bone is quite compressible and elastic. The adult body substitutes ligaments for these bones which turn into the compact bone.

As in every living tissue, we find cells in bone These cells are not ordinary roundish type cells, being more spiderlike in appearance, with many tiny processes or feelers running through what appeared to be solid bone. By means of these feelers, the bone cells communicate with sources of nutrition.

The bone is laid down in layers. These layers are penetrated by fibers, some of which run lengthwise, and others around the bone in a circle These layers are arranged as the engineer would arrange them, in a very slanty fashion, resembling somewhat the shingles of a roof. The layers are cemented together by the excretions of the bone cells, these excretions being what we are pleased to call bone. Thus a very strong network is formed It must not be thought that the layers are in an exact arrangement, for they are not.

The bone layers are grouped around a canal known as the Haversian canal, named for the man who first noted their presence. These canals communicate on the one hand with the cavity of the bone marrow and on the other with the little canals which contain the processes of the bone cells. Through these canals come the blood vessels, the food particles and all things necessary for the formation and upkeep of the bone.. The cavity of the bone marrow is found in practically all bones and it is this area which is the first to turn to bone as the bone is laid down. The blood vessels pierce the wall in early life so that they will not be kept out later and they grow right along with the bone.

Most bone is developed from cartilage, and this is done by a unique process One would think that the body which is a great saver would save the cartilage and just make bone right out of it. This is not done. New cells enter the domain of the cartilage, destroy it and then proceed to make bone. The interchange of materials has as its basis the injection of calcium into the cartilage remains and then more and more calcium is introduced. If sufficient calcium is not added in early years, a condition known as rickets arises and a weakling is usually the result. Plenty of sunlight and vitamin D is the best cure for this and an even better preventative

Bone has a protective as well as a supporting function The entire cranium or head bone mass serves to protect the brain against jarring and injury. The lungs and heart are well protected against normal shock and injury by the presence of the ribs.

It must be emphasized that the living bone is alive just as much as is the living animal. The cells of the bone take in food and give off waste products just as do all other cells. They take in calcium and keep forming new bone and new bone deposits in the various parts of the body. If enough cease their function, the bone begins to degenerate and the person likewise. Death of the cells alone may not account for the degeneration of the bone, but other causes are also present. Mere disuse of the bone may result in its degeneration, while certain diseases of the various glands connected with its growth may doom the bone Several chemicals generated by body glands actually cause growth to take place and also inhibit it under various circumstances. Taken as a whole the bone of the body presents a strange mixture of animate and inanimate substances, grouped together for protection and support, eminently important and vital enough to make life without them an impossibility insofar as the higher animals are concerned.

Meet the Authors

I GET a great kick out of seeing the way the readers take to my stories, but for the life of me, I can't understand why they'd care to read about my unexciting life, or look at my photograph. But the editor asked for it, so here it is. Make of it what you will . . .

My life has been about average, I believe. I've had a lot of fun, and I've done a lot of work—not as much as I'd like to, but right now it seems the war is demanding that I get up on my hind legs and do it. So, really, the war is a break for me, getting me into technological work that I'd have to crash into by pure force otherwise.

It's that technological work that's kept me from turning out as much fiction as I could more than likely sell to unsuspecting editors like Ray Palmer, but he keeps pestering me, so instead of going to a movie with my wife in the evening, I make her mad at me by sitting down at the typewriter. The net result is I have to buy her something with the money, and I get nowhere!

But frankly, you readers, I like writing science fiction and I've always liked reading it. I suppose I'll keep on writing and reading it. I especially admire the work of David Wright O'Brien, William Brengle, G. H. Irwin, William P. McGivern, and Frank Patton.

As for details about myself, I was born in California, and still live there. I am old enough to be above draft age, and remarkably well preserved for a fellow who's blown up more chemicals than his basement was built to stand.

I am exactly six feet tall, dark hair, brown eyes, and my wife persuaded me to grow a mustache—because she says it looks so romantic! Oh, well, she's a pretty sweet little woman, and I'd do anything for her . . .

I went to the California Institute of Technology, and studied for awhile under the tutelage of the General Electric scientists, but they finally decided I couldn't add anything to their refrigerators except maybe gas, and they had enough of that.

I studied under myself after that, and wound up studying the moon beside the girl who became my wife—so that I could resume my beneficial studies, she said.

That was in 1930, and the depression was nothing to sneeze at. But thank heaven, I always managed to supply a few edibles to the family table, and my wife supplied the courage to keep on studying.

In 1935 I got a job with a large chemical experimental laboratory in San Francisco, and we moved there for a couple of years. But we liked sunshine, and I didn't like bosses, so we quit. We spent 1938 just traveling around the country on a vacation that cost us more money than I care to admit—because it was all of it!

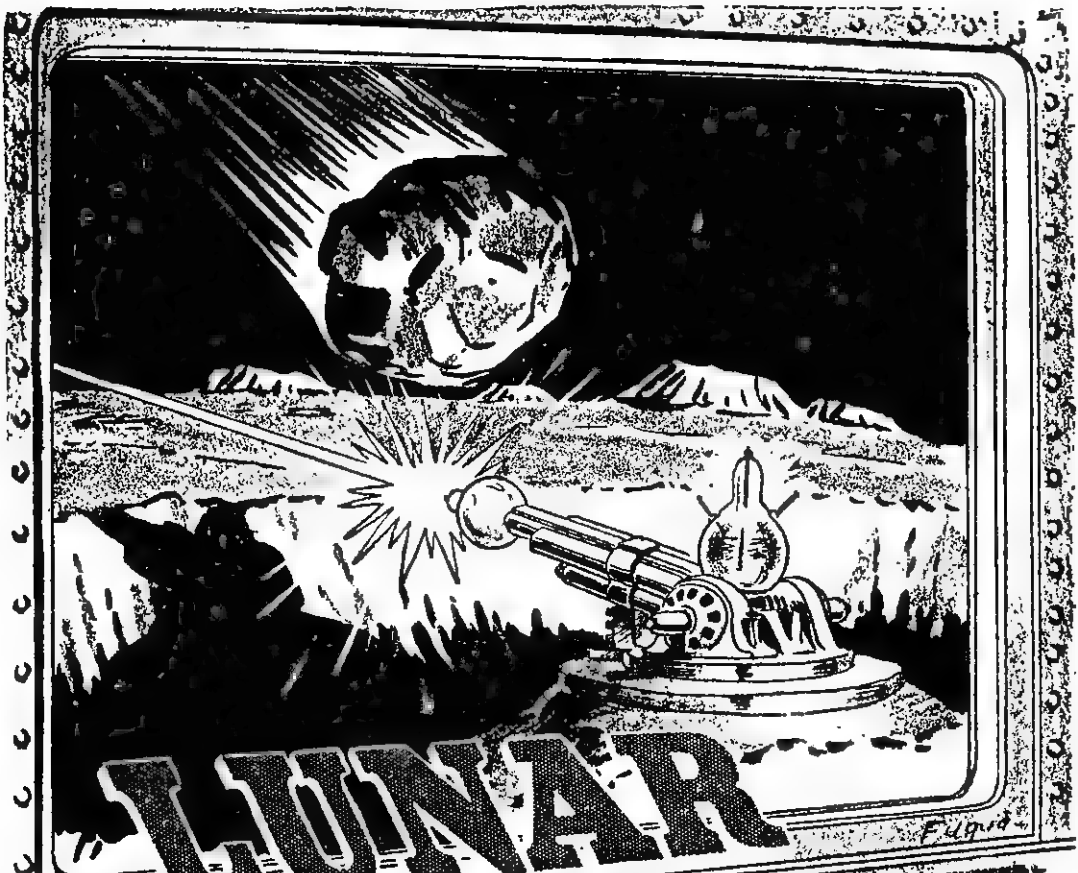
Frank Patton

Then Hitler invaded Poland, and I knew what it was I wanted to do. It wasn't until Pearl Harbor that I really got to doing it, though. And now I can't talk about it, except to say it isn't doing Hitler any good.

As for fiction, "The Test-Tube Girl" was my first sale (after a dozen rejections). I've sold a few since—you've read them all, if you read this magazine and its excellent sister *Fantastic Adventures*. Actually, the wordage isn't high yet, but I plan to do a couple thousand words a week in the future, and maybe you'll be seeing some of it. Right now, I'm doing another one on order for Mr. Palmer which is right up my alley, because it features a woman worker in a chemical war plant. But here, again, I can't tell any secrets, so the story's going to be pure fantasy. As such, I hope you will like it. (Ed's note: Mr. Patton is referring to a story for our October issue of *Fantastic Adventures.*)

After the war, I plan to open my own little chemical "works" and have a laboratory where I can putter around at a few things I've had in mind for years. Maybe I'll be able to make plastics out of hot air, or rubber out of clouds—who can tell. I've seen things lately that make me almost believe anything can be done. Meanwhile I'll keep plugging at the problems the war puts up to me, and I'll solve 'em too, damn you, Hitler!

On the moon was a mechanism that had to be smashed; and Earth had the gun. But there had to be someone to find the range!



LUNAR VENGEANCE

By **THORNTON AYRE**

NEW YORK Airport Number 1 was filled to capacity. Cars were jammed in the tens of thousands side by side; men, women and children were sitting or standing on their roofs. Some had field glasses, others had resorted to twenty-cent spy glasses. There were television cameras by the dozen, radio commentators and newsreel men.

New York had gone mad. The most thrilling of days had arrived. The first flight to the moon was about to begin!

In the center of this cyclone of surging humanity, in an area kept clear by the struggles of police officers and militia, stood the rocket ship—devised and invented by Hartley Dean. Right now he stood shaking hands with Brice Mynak, the toughest stratosphere aviator the World State Air Force had yet produced, indeed about the only man deemed fit enough by medical science to make this daring leap into infinity.

Hartley Dean was massive, big shouldered, strong-faced, with a wide intelligent forehead and deep gray eyes. He was definitely one of the finest astrophysicists science had yet produced. . . . Brice Mynak on the other hand was smallish, olive-skinned, with a hint of his revered Egyptian heritage about his features.

"Good luck!" Hart breathed, gripping the slender, steel-strong hand. "You're probably the pioneer of a space empire, and don't go forgetting it! Everybody, the world over, is expecting big things."

"I know," Brice Mynak said simply. "And they'll get them!" he added—then he climbed through the airlock and closed it.

There was a long, tense pause. Civic authorities, engineers, the mass of the people, Hartley Dean in particular—they all waited. Beside Hart, Beryl Mason was standing tensely, her dark eyes fixed on the machine. Further away still was her father, biting his lip steadily.

"We've waited a long time for this, Hart," the girl whispered.

"Yes." His mind flashed back over the years he had spent with the girl and her father working out the intricacies of space travel in the great Mason Aircraft Corporation laboratories. And now—

Suddenly the rocket ship moved. There was a flash of flame from the gleaming exhaust tubes, a backdraft of scorching air that sent the people pressing backwards with arms flung over their faces. Hart and the girl turned away quickly. . . .

Then with cyclonic force the machine swept from level keel over the heads of the people, over the giant buildings, roared with a meteoric scream into the calm morning sky—turned—went upwards—. Higher — higher, watched now by millions of eager eyes. It became a speck, left a trail of condensation . . . and was gone!

Din exploded everywhere. Sirens blew, people yelled, automobile horns shrieked. Babel rolled back and forth and rebounded in the crowd. Hart stood grinning and frowning by turns—triumphant as an engineer; anxious as a man.

"He *must* make it, Berry," he breathed, clutching the girl to him. "He must! It's man's greatest progressive leap ever!"

SIX hours later came the stunning news. It jolted the world from equator to arctic, suddenly rendered needless the observation of the rocket by trained armies of astronomers. Those other armies, the radio technicians in touch with Brice Mynak, realized before anybody how hopes had been smashed. They were the first to get Mynak's single message—a forlorn, desperate cry—

"I can't stand it! It's breaking me! I can't—!"

That was all! But observers in the moonward hemisphere reported that a meteor had been seen. Falling to earth. Location? Unknown as yet. . . .

In the big central-operations office of the Mason Corporation, Hart was gray with worry, Beryl and her father at his side just as anxious as he was. Their attention was glued to the world-reports being flashed to them. . . . And so at last their worst fears were confirmed.

The rocket ship had crashed! Had come down in a blaze of unholy glory somewhere in the Sahara desert, probably near the ruins of the half excavated city of Tri-Konam. Already the emergency squads were flying to the scene of the disaster.

"My God!" Hart whispered, staring

in stunned horror in front of him. "My God—it failed!"

"But how the devil could it?" Mason demanded. He was a realist, mature, and a keen business man. "We've checked everything—gravity strain, accelerative fields, radiation— And there was plenty of fuel!" He frowned puzzledly. "I didn't get what Brice meant by that one radio message. *What* was breaking him, anyway—?"

Hart jerked out of his trance and cut the older man short.

"What the blazes are we doing standing here, anyway? We've got to get out to that fallen ship as fast as we can. Come on!"

An express airplane was ready for the three of them in a few minutes. With Hart at the controls it streaked like lightning from the city, maintained its stratosphere height and eight-hundred mile an hour speed for the whole eastward journey.

Beryl kept a check on the radio so they could make their course. Gradually they turned toward Egypt. Here it was late afternoon. Desert, the eternal Sahara, spread below them, its surface marred only by the Sphinx and Pyramids and the partly completed restoration of the recently discovered city of Tri-Konam.

But the attention of the three was mainly focused upon a swarming mass of men and sand-tractors gathered around a still smoking object in the sand. Hart dropped the 'plane swiftly, put out the sand-skids, then taxied forward to the site of operations.

Jumping out, he hurried over to Freeman, the chief engineer in charge of excavating Tri-Konam.

"What happened?" Hart demanded.

Freeman's sun-dried face was grim. "Guess this is all that's left of that rocket ship, Mr. Dean. It landed on its emergency underjets so it didn't actually crash: this heat was generated in the atmosphere fall. We managed to get Brice Mynak out before he burned but— Well, he's in a gosh-awful mess."

"Take me to him!" Hart's voice was impatient with worry.

THE engineer led the way across the sand to where Brice Mynak lay under a sunshield, stretched out flat, badly blackened on the face and hands. Healing ointment gleamed on his skin. His breathing came and went in shallow gasps.

"Take it easy," said the medico in the sun-suit attending him. "He's in mighty poor shape."

Hart nodded and took the aviator by the shoulder.

"Brice, what happened? Tell me! Brice!"

Brice opened his eyes at that and Hart felt a strong inclination to recoil. The look in those eyes was unnerving, horrible. It was the blank, ghastly stare of a man who has had reason blasted. Certainly there was no spark of recognition in the dead orbs.

"No use, I'm afraid," the medico sighed. "He's insane. He says queer things at times — impossible things about chariots of fire. Delusions, obviously."

Hart looked at Beryl and her father sharply, then again tried with Brice.

"Brice! It's me, old man—Hart Dean. You know me? Your pal?"

Brice tossed uneasily as though something had indeed stirred his outraged brain. Then he lay flat again and stared blindly up at the canvas sunshield.

"Chariots," he whispered, through cracked lips. "Chariots of fire—in the sky—dropping to the city—! They're falling!" He breathed rapidly. "Must load the towers!" he panted. "Must load them quickly . . ."

He stopped suddenly to grip Hart's wrist with a hot hand. The blank face turned to stare at him.

"They must be loaded," he whispered, almost inaudibly. "The square towers—" Then suddenly he shuddered, relaxed.

Beryl turned away sharply from that sudden death, face averted. The medico pulled the dust sheet slowly over the stricken visage.

"But—but *what* killed him?" Hart demanded, clenching his fists. "Surely you've some idea, doc?"

He shugged. "Might have been one of a number of things. Too rapid a speed in space; sudden clot on the brain causing insanity—. Poor devil! He died crazy all right . . ."

Hart looked around on the wastes of sand; the ruins of the half excavated city. Thoughts were twisting in his keen mind—odd thoughts.

"I suppose it was chance that he landed here," he muttered. "The Earth would have rotated far enough from New York, his initial starting point, to cause it. Yet somehow, because he was of Egyptian descent . . ."

"What the devil does that matter?" Mason asked bitterly. "The whole thing is a fizzle, and one of the best aviators in the world is dead. And I'm a cool two million out of pocket. I guess we'd better see what the ship will fetch as scrap."

THE three of them turned to the site of operations again. With something of an effort, still dazed by the ruin of his plans, Hart made an examination—but not with the ruthless business eye of Mason. His aims were scientific, as usual.

The curious thing was that there was nothing amiss with the ship, except its blackened exterior. The instruments were okay, the fuel ample. Nothing whatever should have stopped Brice Mynak going right ahead to the Moon. Yet, out in space, an unknown power had blasted every sane thought out of him.

"Just what do we do?" Mason asked sharply, when the examination was over and they were having tea in the mobile canteen. "As a business man this is a serious matter for me. It throws my financial foresight into disrepute; and it clouds your profession, Hart, as a first class engineer."

"Those are side issues," Hart grunted, staring moodily at the flaming sunset. "I'm trying to figure out Brice's dying words— That stuff about loading square towers. . . ."

He broke off and Beryl and her father saw that he was looking at the ruins of Tri-Konam against the lurid sky, ruins quite close to the ageless Pyramids, ruins sprouting towers, minarets, and domes. . . .

"I suppose," he finished slowly, "he couldn't have meant *those* towers?"

"Not very likely, is it?" Mason asked bluntly. "Doc Andrews, the archaeologist, says those are only some sort of ventilation shafts. Know better when the excavations are finished."

"Queer to have ventilation shafts to a city that once stood above ground," Hart reflected, still gazing.

To his imagination, as the night deepened, they looked—those towers—like four mammoth guns pointing skywards. But whoever heard of a gun being square? Besides, hadn't the excavators discovered that each tower was set in a solid block of stone? Guns!

Hart laughed ruefully, looked beyond the Pyramids to the eastern horizon. The moon, waning to her last quarter, was just poking into the darkened sky. Brice Mynak had of course taken off at full moon to secure full visibility.

"Looks very inscrutable, sailing

there, doesn't it?" Beryl sighed, watching it with chin on hand. "Just as though it feels proud of having beaten us miserable little humans!"

"But between us and it there is the unknown something which smashed Brice!" Hart's jaws set tightly; then he clenched his big fists and looked towards the dim bulk of the battered space ship. Fiercely he went on, "But Brice told us *something*—and if I spend the rest of my life on the job I'm going to find out what he meant! We're going to build another space ship—or at least remodel this one—and I'm going to drive it!"

Mason and the girl stared at him in surprise.

"But, Hart," the girl said anxiously, "your medical report shows you are not capable of standing it! You've never been a stratosphere man and—"

"Be damned to that!" he interrupted brusquely. "My best friend is dead, and your father's and my reputations are at stake. I'm going to alter all that! Tomorrow we start back for New York and begin all over again. No mystery in space is going to balk this effort to make the Moon the first stop in a regular space line."

CHAPTER II

Sahara Secret

FIRED with new enthusiasm Hart cracked the whip to full effect in the Mason workshops and the salvaged space machine was brought back to its original glory—a job that took nearly two months of ceaseless work.

In this time the unhappy death of Brice Mynak and the fiasco of the first lunar effort had died from public memory—and this time Hart killed all publicity about his intentions. He had gotten through the first debacle by the skin of his teeth: a second one might have grave commercial and professional repercussions.

So when at last the machine was ready it was placed in the private testing yard of the Mason works. The day set for departure grew nearer: each night brought a waxing Moon in the early autumn sky. And with it Beryl Mason became increasingly anxious.

"Look, Hart, does it really matter?" she asked him, as he finished his check up of details on the night before he was due to depart at 10:00 a. m. next day. "I mean why not experiment a little more and maybe you'll find what really drove Brice insane. There was perhaps some error which—"

"Listen, sweet, there was no error!" He caught her slender arms gently, looked into her strained face. "Whatever trouble there is in space I'm going to locate—and it *is* there and no place else. What's more, I'll reach the Moon! I have everything here—radio, provisions, space suits, weapons— What's the matter?" he broke off, as she remained silent.

"Nothing," she said very quietly, then detaching herself from his grip she walked away across the tarmac without another word. He wondered if his adamancy had offended her. . . .

Next morning he was quite sure she'd taken umbrage for she did not even turn up with her father to see him make his lonely departure.

"I don't know where she is," Mason replied anxiously, as Hart questioned him. "She went off somewheres last night after seeing you. I guess she doesn't like you risking your life, Hart, and I feel the same way about it. However," he shrugged, "we can't make headway without risk. So there it is."

He held out his hand and Hart gripped it firmly. There was a rather woeful smile about his lips.

"Tell Berry I'll come back a hero," he said briefly; then went inside the ship and closed the airlock.

HE SAT before the control board he knew so well, hesitated for a moment, then switched on the power to the firing cylinders. Instantly the machine jolted under him, flung him flat against the springs of his chair. His breath was forced out of him in a long gasp: little drops of blood trickled from his nose. For a second or two he sat in gasping anguish as the ship hurtled outwards, upwards, and then climbed with dizzying speed.

Faster he went, cleaving through the stratosphere, the Heaviside Layer. Temperatures outside switched amazingly but in the insulated ship he felt no variations — Then a cry broke on his ears, a cry of pain. . . .

He twirled round in amazement. Beryl Mason was right behind him, staggering a little, her face as white as a sheet and blood smearing her nostrils. She gave one brief, defiant smile then collapsed her length on the floor.

"Berry, you loyal little fool—!"

Hart stumbled towards her, lifted her with an effort to the long charting bench, bunched up his coat as a pillow. He paused only long enough to put the robot pilot in commission then turned to the job of reviving the girl. It did not take very long. Presently her eyelids fluttered open.

"The take-off is—is pretty awful, isn't it?" she muttered.

"Berry, why did you *do* this?" Hart tried to sound stern. "Think of the risk! It may mean death!"

"I know. I'm a bit of a scientist like you. But my place is beside you—and since you wouldn't see reason I decided to become a stowaway. I've always wanted to explore anyway, ever since I climbed trees as a kid. You can't send me back now," she finished seriously.

"But your dad will be frantic!"

"Not he. I left a letter which he'll have found by now."

Hart sighed. "Okay, you win. But you've destroyed my peace of mind for the rest of this trip— Better now?" He helped her to get to her feet, and for a moment they both staggered at the more than normal gravity occasioned by acceleration.

Slowly they moved to the window. In awed silence they gazed outside. It was breathtaking because it was a complete novelty; it was something which so far had only existed in their imaginations— The dead black void of space gilded with a myriad stars: the Sun with his twirling prominences and ghostly corona. Then the Moon toward which they were heading, her right hand limb beginning to shade off slightly as the full phase waned.

Clear, uncannily clear, the satellite hung there, her face traced with innumerable mountains and crater-pits, marred with the dead sea bottoms. Then there were those bright streaks and rays sweeping outwards from Ptolomy, Copernicus, and Tycho—more complex than ever when viewed through this perfect vacuum.

"Those rays -science's biggest mystery ever," Hart mused. "So many explanations and none of them convincing . . ." Pausing, he gazed in different directions with a frown. "Damned if I can see what could have caused Brice to—"

He turned, caught the girl in his arms as she swayed dizzily. Her face had gone deathly pale again. Her eyes, formerly filled with interest, were now fixed on the Moon's inscrutable disk in something like horror.

"Hart," she whispered, "I feel something terrible—stifling—trying to —"

Her senses left her and she became limp in his grasp. He was so stunned with the suddenness of it that he didn't know what to do for the moment. Gently he laid her down on the floor, and at the same moment a vast wave of dizziness caught him, too, sent him sprawling across her. Whatever had come upon them it had affected the girl's more sensitive organism first.

HART got to his knees with difficulty, but he felt as though he were in hell itself. Fiery darts of radiation — vibration — were hammering and twisting through his skull. It made movement a titanic effort; thinking almost an impossibility. The wildest of delirium sought to blast his agonized brain.

He was going insane! And subconsciously he was aware of it! Mightily, superhumanly, he battled against it, using every scrap of his will power. He clawed his way to the switchboard, overmastering a desire to burst into peals of hysterical laughter. Reason, all the normal ideas associated with this amazing trip, were fleeing away from him.

He caught the switches, held onto them like grim death and turned the machine slowly round. As he half crouched, drooling in spite of himself, he saw the Moon apparently spin round in a dizzy half circle. The more he gazed at its dead, inscrutable face the wilder seemed to rage his emotions.

"I must!" he breathed to himself, doggedly. "I must get free!"

But how he was to do it he had no idea. He was in a daze. None the less he began to realize as the ship twisted round and moved Earthward that the crushing lunacy was beginning to relax, flowing away from him like an ebbing tide.

Faster he sent the ship hurtling on the return journey, until all Earth filled the space before his straining eyes. Less racked mentally—though by no means ruled by ordered sanity even now—he had the chance to notice one thing. Earth had turned on its axis so that the Sahara desert now faced the void—and the ship was falling towards it. Obviously then, since he had started from New York and got just about the same distance as Brice Mynak before being overcome, it had been purely law of science which had brought the aviator down in the country of his ancestors. . . .

Consciousness sought to desert Hart —but he knew that that meant death from a crash landing. He hung on somehow, guiding the ship until it tore through the atmosphere with the fiery trail of a comet. . . . Down and down, faster and faster, until the yellow sand came rushing up to meet him— He blasted the underjets at the last second. A stunning crash and the splitting of tortured air slammed into his senses. He went flying and collapsed into darkness.

STIFF, bruised, his head aching violently, Hart stirred again. He was in total darkness and silence, seemed to be huddled against the curved padded wall of the machine. He felt around him and unexpectedly gripped Beryl's hand. Obviously she had been thrown right beside him.

For a long time he tried to recall what had happened, then as he pieced the hectic last moments together he scrambled to his feet and felt around for the light switch. It operated, and the cool glow showed the machine tilted at a sharp angle. Outside the ports was dead blackness.

The immediate environment did not concern him. His brain was clear now, thank God, and that terrible madness

had gone. He went over to the girl and for ten minutes gave all his attention to reviving her. By degrees he explained matters to her.

"But—but where are we?" she asked finally, as he helped her up.

He shrugged. "Last thing I saw was the Sahara—pretty nearly the same spot where Brice landed. I passed out then and don't know what happened—But we'll soon find out!"

He handed her a torch, took one himself, then opened the airlock. To their surprise they didn't step out into a night-covered desert or to the friendly voices of the men excavating Tri-Konam. No, they stepped out into the vast deserted reaches of an immense underground cavern, wrapped in the weighted silence of the tomb.

They were both too surprised to be afraid. Moving slowly away from the ship on rocky floor they presently turned and looked back at it. It was tilted nose down at forty degrees, its tail piled thick with rubble, rocks, and sand. Up above in the cavern roof there was a gaping fissure.

"I think I get it," Hart said at length. "We struck the sand nose down and plunged right through a weak seam in this roof into this cavern, bringing in the rocks on top of us. Guess it will take hours for anybody above—granting they saw us—to get us out. Wait a minute; I'll try the radio."

They hurried back into the ship, and to their relief the radio worked. Nor was it long before they made contact. The voice of engineer Freeman came through the loud speaker.

"Thank God you're alive, Mr. Dean! But it's going to take us a bit of time to get down to you, I'm afraid. . . ."

"Just whereabouts did we hit?" Hart interrupted.

"You went right through the sand about quarter of a mile south of the Tri-Konam towers. Guess you must have plunged into part of the city which hasn't yet been excavated. . . . Okay, you hang on. We'll dig you out with blasters."

Hart switched off and looked at Beryl. She seemed relieved.

"Take them some time anyway," she said. "Might as well do a bit of looking around while we wait. . . ."

AGAIN they left the ship, flashing their torches as they went. The cavern seemed endless in extent, cyclopean in its vastness. It receded into shadowy darkness far away—but that it had once been used was clearly obvious for there were the rough outlines of roads; then as they advanced further they beheld shattered stone colonnades which had obviously been the work of intelligent beings at one time. There were even dwellings, queerly designed, smashed amidst a wilderness of boulders.

"Obviously all part of the still unexcavated Tri-Konam," Beryl said after a while.

"Yeah," Hart acknowledged, and he was obviously pondering. Then he said, "Come to look at it, the walls of this cavern are not solid rock; they're composed of countless hundreds of rocks piled solidly on top of one another and fused partly together by some vast heat. Suppose this city were originally on the surface but rocks piled so thickly around it that it became buried in a cavern?"

"Doc Andrews has thought of that," the girl reflected. "But how did so many boulders get fused round a city . . .?"

Hart couldn't answer that one. They went on, gazing about them fascinatedly. Then they both glanced at each other as ahead of them in the midst of the ruin they saw four massive

pieces of apparatus, age-old, but with their outlines still plainly discernible.

When they came up to the machines they found them supporting a chimney-like mass of metal each, going up through the cavern roof. To each machine was still linked a maze of stout cables, all leading to a power engine of fantastic design.

"Doesn't make sense to me," Hart muttered. "These things look rather like the special stoves used for making pottery — you know, like an inverted tundish with a squarish chimney—" He stopped suddenly, catching the same amazing thought as Beryl.

"We're at the base of the four square towers!" she ejaculated.

"Of course!" He stared in wonder. "So far unexcavated—"

Immediately they both forgot all about the rest of the ruins and instead concentrated on studying the four machines in front of them. After some searching they discovered there was a way *inside* the machines. Carefully they entered one of them, found themselves in a sort of square metal chamber, standing on a device of massive springs and complicated switches. Over their heads yawned the cavernous dark of the flue, its outlet obviously blocked since surface testings had shown the chimneys had a stone foundation.

"I'm going to take a look up here," Hart said, and catching onto the chinks in the steel he made his way up with comparative ease, stopped finally when he came to solid stone—a mighty block of it barring his way. He puzzled over it in the torchlight, then dropped back to the girl's side.

"This isn't a foundation; it's jammed half way up the flue," he said. "Just as though heat had fused it there. Same sort of stone the Pyramids are made from—a great square block of it. No wonder it was mistaken for a foundation stone by those above."

BAFFLED, they looked back at the floor on which they stood.

Hart said slowly, "This machinery, what's left of it, is like the stuff they used to use to fire ballistas. You know, those old fashioned catapult things. I wonder—"

"If these things are ballistas on a giant scale?" Beryl broke in quickly. "Why not? The Egyptians used to have 'em."

"Yeah—but firing blocks weighing countless tons! The power that would be needed!"

"Maybe they had it. The machines linked to all this spring mechanism—and particularly the big one where the wires join up—are right beyond us anyway. Atomic force perhaps. . . ." The girl gave a hopeless little sigh. "After all, we're not archaeologists: better turn the problem over to Dr. Andrews and let him worry. Our job is to solve what's wrong in space. We're still licked in trying to get to the Moon, remember."

Hart nodded gloomily. "But we won't be! We'll solve what's wrong out there in space even if it kills us. 'Least I will."

"That means me, too," she said seriously.

They gave up their searching and climbed out into the cavern again, spending their journey back to the space ship studying the city's remains. Undoubtedly there were endless evidences to show that Hart's theory had probably been correct—that the whole place had been battered and pounded until the surrounding cavern walls had been made from piled-up rocks.

"And the rocks would erode into sand under weather conditions," he summed up. "So we get the Sahara. Once there was a mighty, prosperous city here and

a very intelligent race back of it—not necessarily the Egyptians but the ones who built the Sphinx and Pyramids. We've no proof the Egyptians ever made those."

"And Brice was descended from the Egyptians," the girl mused. "Remember him saying all that about chariots of fire dropping to the city? Space ships? Or shells or something? Rocks?"

"Possibly." Hart gave a perplexed shrug. "Oh, leave it to Doc Andrews. It's his job anyway, not ours. We'll hand him the dope the moment we're rescued. . . ."

THEY had time to get a meal and a sleep before the first sizzling fire of a rock blaster burst through into their underground prison. Then in a few minutes safety ladders began to appear. The rescue party came into view, looking round curiously. Freeman came hurrying over.

"Say, what kind of a place is this anyway?"

"Along with Doc Andrews you are going to find out," Hart said briefly. "Come along to base camp and I'll tell you all about it. . . ."

From the base camp radio calls went out for Doc Andrews, and the girl's father. Fast airplanes brought both of them before dawn was paling the eastern sky. Doc Andrews in particular, the best archaeologist in America, listened interestedly to all that was told him. He was a lean, little man with rimless glasses and a fluffy white head.

"Maybe the answer to the whole problem of who built Tri-Konam," he said finally. "I'll take charge of excavations right away. Freeman, come with me."

"All this is very well," Mason said gravely, "but what good does it do us? Beyond turning yourself and Berry nearly insane, Hart, you've gotten nowhere with this second effort. Don't you think it's time you gave up?"

"No!" Hart retorted. "I'm going to conquer the first space leap somehow. I plan to stay here for the moment and supervise the salvaging of the rocket ship from underground. We can get it repaired where necessary and then figure out a new plan of campaign. But that Moon is going to be conquered!"

CHAPTER III

Desperate Journey

WHILE the salvaging of the machine went on, Dr. Andrews went to work with tireless energy in the caverns below, ruling over his army of willing helpers.

A couple of weeks passed, in which time Hart had had the time to carefully examine the damage sustained by the rocket ship—then one evening as the party sat in their tent at a late supper Dr. Andrews came hurrying in, eyes glinting behind his glasses.

"I believe I've sorted the mystery out!" he cried, plumping down at the table. "It's a most amazing story, believe me—but from the records we've found and deciphered I think it's right. The place *is* a continuation of Tri-Konam, by the way, for the hieroglyphics are the same as those already discovered. That made me able to make instantaneous translations. Anyway . . .

"There are some ancient charts in the ruins which show the Moon—but it's not the Moon that we know. This one is covered with clouds and obviously has an atmosphere!"

The others looked at him sharply. He went on,

"Other records reveal that the people who built this city originally came from the Moon —and there are a number of still fairly useful space ships to prove

the fact. But from the unsavory history they possess it seems that they fall into the category of what we'd call gangsters—or else were ostracized from the Moon on account of criminal scientific activity. They came to Earth with various notions of vengeance, it appears. And they were clever—far cleverer than anybody we know today. What they looked like we don't know, but records seem to show that they were not unlike animal-men . . . like the Sphinx itself for instance.

"They wanted vengeance," Andrews repeated seriously; "and they chose an amazing way of exacting it. At the time they erected the city of Tri-Konam the Sahara desert did not exist; it was a rock-strewn plain. The outcast Selenites, it appears, hit on the idea of hurling meteorites at the moon which had disowned them! In other words, giant blocks of stone from the plain were used, blocks which would become hell-laden bombs of devastation when they hit the Moon because of her small area compared to Earth . . ."

"My God, the lunar craters!" Hart ejaculated.

"So it would appear. Nor did they put over a rush job. They collected endless blocks, using giant levitators whose lifting system we can as yet only guess at. They gathered vast piles of ammunition, high enough to be level with the tops of the guns they intended using. That is why the Pyramids are the same height as those four square tower-guns. Machinery obviously lowered the blocks into the gun muzzles. As far as I can judge, atomic force fired the blocks. And the effect on the Moon can be imagined!

"Endless meteors must have hurtled at it from Earth, pounded it to blazes, raised vast mountains, gouged deep craters, lifted the tortured atmosphere to boiling point and evaporated the seas themselves. But apparently the Selenites on the Moon had the time to retaliate for this brutal vindictiveness. They devised similar methods and fired numberless rocks back at Earth. They were better aimed than those from the aggressors and the vast majority crashed down on Tri-Konam. There are faded photographs to prove that much. As one crashed on another at white heat they liquefied into each other, became a solid wall round the city, since the city itself was no doubt protected by some means or another. But finally the city was buried in a cup of molten rock. The Pyramids remained, their sloping sides permitting no grip for hurtling rock. The surface rocks underwent weather change and a desert formed. Tri-Konam vanished under what has become the Sahara desert. . . .

"So apparently both sides were wiped out," Andrews concluded. "Apparently the Earth-guns fused with the excessive heat, a block in each barrel—which by the way can be easily removed. The Moon was wiped out, her air gone, and her face bearing to this day the scars of the onslaught. . . ."

"AND," Hart said slowly, rubbing his chin, "you say these Selenites probably looked like the Sphinx?"

"Probably," Andrews nodded. "Of course it is possible that some of them escaped to the outer world—but each succeeding generation would more and more conform to the laws governing this planet, would become more bipedial. Eventually, no doubt, they formed the nucleus of what later became the Egyptian race, and by a mass instinct they chose to live near the site of their long forgotten ancestors from the Moon."

"Which might explain Brice Mynak's dying visions," Mason put in quickly. "He was Egyptian by descent, of

course. Suppose, as he died, he had a flashback of memory through his ancestry—as so often happens just before death? He spoke of a city being bombarded by chariots of fire— That bears out the meteors. And then he mentioned about loading the towers, which also fits in."

Hart nodded slowly, thinking. "And it might explain—though I don't know how the reason for the mad insanity in the void."

"But where is the connection?" Beryl asked, puzzled.

"Listen," Hart said seriously. "If a race throws out a collection of undesirables, and it has great scientific power, it also makes darned well sure that said undesirables never return. And not only them, but their descendants! These few on Earth would presumably be destroyed far quicker than the vast number on the Moon. Those on the Moon no doubt wanted to be sure that all survivors and descendants of the outcasts would *stay* on Earth and never again reach the Moon to perpetrate more villainy. So, between Earth and Moon some sort of barrier was established. Something to defeat all efforts to reach the Moon!"

"Just a theory," Mason shrugged, unconvinced.

"I disagree!" Hart shook his head emphatically. "Stratopilots, as we know, sometimes go crazy by flying too high, whereas aeronauts of the ordinary type get spells of amnesia. We know what happened to Brice and to us in space where no atmosphere at all could shield us — Again, don't forget that at full moon lunacy on Earth is by no means an uncommon thing among certain types of people, and usually in spots where the atmosphere is least dense."

Mason gave an incredulous smile. "Are you seriously suggesting that the Moon is training waves of—of lunacy to prevent anybody reaching it?"

"It's worth a bet," Hart snapped. "We've evidence to support the theory, too— And I'm going to get busy proving it on the next hop. One-half of the mystery is solved: the rest will come the same way."

"And the next immediate move?" Beryl questioned.

"We radio to the Mount Everest Observation Unit. I want lunar recordings . . ."

With that Hart headed out of the tent to the radio camp, left the others looking at each other dubiously. . . .

ANOTHER week passed in the sweltering heat of the desert, Dr. Andrews finding more evidences to support his already provable explanation of the Pyramids and Moon. Space ships, battered but well capable of revival, were brought to light.

To Hart, however, all this was a side issue. He was waiting for a reply from Mount Everest— And at last the needed reports came through. He spent an evening studying them with Beryl, Mason, and Andrews grouped around him.

"Definitely we've got something," he breathed at last, pointing to the graphs which had been teleradioed to him. "These show a distinct and unusual radiation being generated by the Moon when she is at the full, dwindling as she reaches the quarters, and fading entirely at New Moon. Lunacy is always at full moon, and we and Brice made our trips at the full moon also—so we got the full blast of this unknown radiation . . ."

He paused, studying the Observatory notes. Again he contacted Mount Everest by radio, said as he waited, "They don't know what this unknown wavelength represents. Their Physical

Laboratory had better find out—"

As the Observatory replied he gave the details, then added, "Better make sure that nobody in your Physics department gets in the way of that radiation when you try and duplicate its wave-length. It might either kill or produce total imbecility . . ."

With that he switched off and waited, pondered a while.

"Since it occurs at full Moon it must be connected with the Sun," Beryl said thoughtfully. "The Moon only shines by reflected light. It seems that the absence of radiation at new moon is—"

"Idiots that we are!" Hart interrupted her suddenly, his eyes gleaming. "What are the most dominant things on the Moon at the full? And partly at the quarters? Why, the bright rays and streaks from Tycho, Ptolomey, and Copernicus! Nobody has ever yet figured them out— And no wonder!"

"But," Mason argued, "at the new Moon they can still be seen reflecting Earthshine."

"What of it? Earth's illumination means nothing. It is *solar* action that does something, and since the Moon always reveals the same face to Earth the effect repeats every time— By God, I'll swear we're getting at it!"

HE FELL to eager thought, pulling his underlip—then he switched on the radio as the signal sounded again.

"Say, Hart," came the voice from Everest, "it's a darned good job you warned us to keep clear of this radiation! It's dynamite! We tried it on a rabbit and it went stark crazy."

"Did it die?" Hart questioned.

"No — just went nuts. Same thing happened to a white mouse—"

"That's all I need to know. Thanks a lot."

Hart switched off and looked at the others tensely.

"We've got it! Lunacy radiations *are* generated by the Moon, but in the main very few of them reach Earth's surface because of the atmosphere. Maybe they're not intended to anyway: they are just there to stop anybody trying to get to the Moon. Begins to look as though my guess was right. The Selenites went to a great deal of trouble to stop any gangsters getting back."

"But the Selenites must be dead by now!" Beryl cried. "What is the idea of prolonging—"

"I don't know. But I'm going to the Moon to find out. Maybe it's a legacy —automatic—which will go on until somebody stops it."

"You daren't try again!" Mason protested.

"There *is* a way!" Hart breathed, his eyes gleaming. "I must start off from Earth just after the last quarter of the Moon when the radiations are ebbing to minimum at new Moon. I've got to reach the Moon then before the first quarter—that is in fourteen days. I should make it. . . ." He straightened up. "I've *got* to," he finished simply.

"Then I'm coming with you," Beryl said quickly; but he shook his head.

"Not this time, Berry. This is a real gamble with death and I'm not taking that chance."

She was silent, looking out towards the desert. Then she gave a shrug.

"Okay, perhaps you're right. . . . And I suppose you know that the Moon's last quarter is tomorrow night?"

"I know. I leave first thing tomorrow morning. . . ."

AT DAWN, after an undemonstrative farewell, Hart took off in the fully repaired rocket ship. His mind was so concentrated on his job that he hardly gave a thought to the desperate risk he was undoubtedly taking. Imbecility, death itself, lay before him unless he

made the grade in time. Space was not even charted to help him: he was the first lone pioneer blazing the trail between Earth and Moon—

Yet he sat down before the control board as calmly as if he were making the usual flight from New York to Australia.

In a few minutes the dawn-lit vista of the Sahara was whirling away under the rear tubes. Again blood trickled from his nostrils; and anguish belted him as he tore against Earth's gravity—up and out into the void. Regardless of his physical sufferings he pushed the power up notch by notch. Speed! Everything depended on it!

Ahead of him the Moon was a thick crescent, the copper brown of the earthlit portion merging into ragged lines along the terminator. Two hundred and forty thousand miles in fourteen days? It might be possible. He was using no super-fuel, though, only ordinary monoxite, the most powerful fuel known to Earth so far. Yes, he *might* do it, but with precious little margin to spare.

Rest was the most incessant demand made of him. The strain of space flying was unbelievable, he found, and there were no fancy gadgets to help him; those would come from the space engineers of the future. All he got were the crushing pressures of acceleration, the lightheadedness and sickness of disorganized internal functions. For hours at a stretch he lay in the eternally sunlit cabin, sprawled out, giving out radio signals to Earth to say what grand condition he was in.

Time and again he was delayed, swerved off his course by brickbat swarms. Later, he decided, ships must have repellers. Each time he re-set the course he noted worriedly how much schedule had been nipped.

With growing anxiety he watched the crescent appear on the waxing edge of the new Moon. Earth was well behind now, pink-rimmed, green tinted. The Moon filled all the void, and deep in the coppery bowl of its night, reflecting star and earth-shine, Hart saw quite clearly those deadly points from which he was convinced spewed death and insanity . . . the streaks and rays.

He had been on the way now for 12 days, 16 hours—but now he was within the Moon's gravity field his speed would increase even more. More than once he thought his heart would stop from the sensation of everlasting headlong falling. Hours—minutes—days—nights— He didn't know which was which or where he was. Everything was in hopeless confusion in his brain. He lay now on his stomach, one leaden hand on the rocket switches, the ship dropping towards the ever-spreading sunlit tide engulfing plain, mountain, and dead sea bottom.

Already the fingers of the Sun were creeping to the fatal points. He drove on desperately, headed round the limb of the Moon away from the center to the furthest point on the still dark side.

Lower —faster — Jerking — twisting. A headlong dive!

He landed with a crash that shook the wits out of him. But as his senses departed he had a deep subconscious thrill. . . . He was the first man to reach the Moon!

CHAPTER IV

The Final Gamble

IT WAS still dark when he recovered —the frozen, searing dark of the lunar night, the stars frostily still in coal-black sky; the Earth bisected by the saw teeth of the mountain range beside which the ship had dropped. It was dreary, unthinkably desolate.

Hart shuddered, made himself some hot coffee and ate a little food; then he scrambled into his spacesuit and made his way outside cautiously, torch in one hand and lethal gun in the other.

Sunrise, he realized, was still some time off, and for that he was thankful: he had little desire to wander around in a temperature near that of boiling water. He was none too sure of this first space suit's insulation: it might let him down.

First he examined the ship—and got a shock. Three of the tubes were smashed to hell! Grim-faced, he stared at them, then with a fatalistic shrug of his shoulders he turned and headed to the top of the ridge forming the lower foothills of the mountain range. From here the sight which greeted him was surprising.

Across a ragged plain he was gazing at a solitary ray, pale gray in shade and hardly visible, projecting upwards—*Earthwards!* Beyond the near-horizon were two more rays, obviously from more distant craters, and they too were pale and dim like faded searchlights, reflecting only star and Earthshine at the moment.

"Tycho, Copernicus, Ptolomey," Hart whispered to himself. "This one as I figure the geography, must be Tycho . . ."

Down here, *behind* the rays so to speak, no sense of mental turmoil touched him. He advanced again, over rills and crevices, leapt ravines in the lighter gravity—on and on, until he came to within close range of Tycho crater. Through a cleft in the surrounding hills he stared down onto it, perplexed.

The whole crater floor was a shifting sea of pearly light—and being to one side of it no influence reached him. As yet the sun had not reached this far, though it was approaching as he could see from distant mountain peaks, tipped with ice-white brightness.

Finally he scrambled down towards the crater, tripped over something, and went flying. Going back to examine it he found a thin wire, of all things! And tracing it back he found it went in a circle round the crater, fastened to stumps of substance that seemed like ebonite.

Animal snare? Private property? He didn't know; but it seemed an odd idea to put a wire around a crater as one might round an earthly sheep field. He gave it up at last, went to the very edge of the shifting substance on he crater floor—and then found that it did *not* shift. It was motionless: the illusion of movement was created by endless ripplings of radiation.

PULLING a ladle from his equipment he gathered a scoopful of the stuff and withdrew it carefully, began to return to the ship. But as he went, looking back, he was aware of something. For some reason the three ashy-gray beams had now been augmented by three more beams, pale violet in color, tracing like lavender fingers into the void.

The riddles buzzing in his brain deepened—and deepened again when, still continuing shipwards, he did his best to find some sort of entrance into the Moon's interior. Every time he drew a total blank. All openings, gaps, crevices, pits, were sealed up—apparently by flowed lava. There was no way in.

Disgusted, weary, he got back to the ship and set to work on the crater's material with analyzing instruments. He had been at it for an hour when the sun smote down through the window like a finger from hell, sending the ship's temperature up by leaps and bounds.

Hart shut the airlock promptly and took off his spacesuit. The heat abated somewhat as insulation returned. He screwed his eyes at girdling prominences and flame white brilliance beating from over the mountain range, then went on with his analysis out of the sunlight.

Finally he gave a little gasp of amazement, contacted Earth over the radio short wave and heard the welcome voices of Mason and Beryl answer back immediately.

"I've solved what causes the lunacy, anyway," he said, when the fervent greetings were over. "The craters responsible for rays are filled with a metallic isotope, laboratory-created, I should think. It absorbs and retransmits solar wave-lengths, these wavelengths being identical to the ones produced in the Mount Everest laboratory. Some crystals on Earth—tourmaline for one—absorb only one particular radiation and retransmit it: tourmaline does that with light. This isotope does it with brain-irritating radiations.

"Normally of course the sun transmits a whole mass of radiations, one of which neutralizes another. Taken in bulk they are harmless: but one of them singled out can be deadly. The one singled out here *is* deadly, as we know. And in each case the radiation is aimed at Earth. Thanks to the atmosphere it doesn't penetrate all the way to Earth's surface—"

"But it *is* doing!" Mason cried abruptly. "It started about two hours ago. Reports are coming in from everywhere of serious disturbances affecting people the moment the Moon rises! *Something has happened,* Hart! Stratopilots report that the atmosphere at the upper levels is being affected by some electronic stream which is disrupting parts of the ionic layer—"

"Wait!" Hart gasped. "Wait a minute—!"

HE STUMBLED quickly to the port, a memory blazing through his brain—a memory of a wire round Tycho crater, which he had snapped. Wire on ebonite poles. Then those subsidiary beams of violet which had mysteriously come into being . . . !

Dumbfounded, he stared outside on the blinding brilliance of the rays from the now sunlit craters. Yes, those violet beams were also still visible against the jet backdrop of sky . . . He swung back to the radio.

"I believe I've done something terrible!" he panted. "I fell over a wire a while back, and snapped it. It was some sort of a bait, I guess—broke a contact or something which started machinery bidden under the craters. Machinery in this lunar underworld . . . That must be it," he went on desperately. "For all I know this Moon may be honeycombed with such snares. It must be the second and final safeguard laid by the Selenites. If anybody *did* chance to reach the Moon they laid this other trap, knowing it would be bound to be started finally. Electromagnetic beams directed at Earth's atmosphere are to stop anybody else coming from Earth by driving *them*—everybody—to madness!"

"But can't you do something?" Mason demanded hoarsely. "The disaster may not be so big *this* full Moon, but those electromagnetic beams will keep on tearing down our ionic shield until the next full Moon—then trouble will blast down in real earnest. Don't you see?"

"Yes, I see," Hart acknowledged grimly. "But I can't get into the underground anyway. The caves, rills, and chasms are all sealed—for reasons quite obvious now. I don't think any

life exists here any more, but it's evident that machinery was left behind situated under each special crater and ready wired—Say, wait a minute!"

Hart broke off, thinking. "Under each crater," he repeated slowly. Then his voice tautened. "There's one chance, just one! I've no explosive powerful enough to wreck the place, and I could not get back to Earth if I wanted. The only alternative is for you to fire at this satellite with your ballista guns from Tri-Konam!"

"What!" Mason ejaculated. "But it's impossible! They're so old and—"

"But they're intact," Hart interrupted. "And Andrews himself said it wouldn't be difficult to free their bores of those stone blocks. It's the only way: and it must be done in time for the rocks to land here before the next full Moon. As soon as you can possibly do it. I'll guide your aim by radio from here."

"And you?" Mason asked anxiously.

"Yes, what about you?" Beryl's voice asked in alarm. "If we succeed with these ballistas we'll give the Moon a terrible pounding, and you might—"

"Get those things right and fire!" Hart ordered doggedly. "Get Dr Andrews busy. I'll look after myself . . . When you have got the guns working contact me."

And to prevent further argument he switched off . . .

FOR a long time he sat thinking, scowling through the port onto the sun-drenched, inhospitable scene. He was only just commencing to realize that he had virtually signed his own death warrant. If he was to direct the meteorites' paths by radio he certainly couldn't get very far away from here. And one meteor a bit off the target might very easily mean—

"Looks like you let yourself in for something, feller," he said, getting to his feet; then more for the sake of something to do than anything else he went out into the blaze to confirm his earlier suspicions that all means of entering the underground were sealed up.

They were—utterly. For a long time he surveyed those deadly rays pointing upwards, made estimates of distance with his instruments for target-direction purposes, then glanced towards the green Earth on which they were focused. A nostalgic feeling swept over him. He thought how nice it would be to have security again and Beryl beside him.

"Dope!" he grunted, and trailed back to his battered machine. Thereafter he stuck to the ship. The heat was too intense outside for prolonged investigation anyway. So he spent the time thinking, eating, sleeping, and marveling somewhat at the different rate of time upon the Moon. The 14-day lunar day had gone again at a surprising rate and cold, inexorable night shut down again.

Then at last his nerve racking vigil was broken as the radio gave out its deep signal tone. The moment he snapped the switch Mason's tired but eager voice came through.

"Still there, Hart? Well, we managed it— Thanks to Andrews! Restoration work is finished and the ballista towers are ready to fire. But why don't you leave the Moon and let the astronomers chart the target accurately?"

"How can they?" Hart demanded. "There's no air to fire the rocks as they fall. All that will be visible on Earth will be friction flashes . . . No, I've got to direct operations. And besides," he finished dryly, "I guess I'm here for keeps. I smashed the ship to blazes when I landed."

"Hart!" came Beryl's voice, aghast.

"Forget it, Berry," he said quietly.

"I'm doing useful service right here, I guess. Remember me now and again when a space lane service is opened—" He stopped, finished crisply, "Okay, make your first shot and I'll tell you what happens."

In his mind's eye Hart could picture Mason giving the signal. He left the radio, almost heedless of Mason's curt announcement that the first boulder had been fired . . . Standing at the port he watched the backdrop of blazing stars —the distant worlds. He counted seconds mechanically . . . Seconds—minutes—an hour. And it was an hour that drifted into eternity, it seemed.

HE WAS cold and cramped with waiting when all of a sudden, without the least warning, a titanic concussion from somewhere near the horizon shook the very ground whereon the spaceship stood. He stared out towards distant Ptolomey. And more rocks descended, chipping pieces out of the mountain ranges, drawn by the Moon's gravity field.

"Nice going!" he shouted into the radio. "You're hitting right in to the Ptolomey area. Keep it up—and aim for Tycho later on. You'll have to hit Ptolomey and Copernicus as best you can: I'm too far away to direct you. But Tycho's a cinch. Seems like the initial speed through Earth's atmosphere is so swift the boulders hardly lose any size. And here there is no diminution at all, of course. What's your initial take-off speed?"

"Thirty miles a second," Mason said.

"Okay—keep going."

So, after another long wait, bombardment began in real earnest. Hart watched in fascinated interest as boulder after boulder came flying invisibly from the void to hammer beyond the horizon. Here and there they missed hopelessly as a quirk of gravity in space had drawn them off their trajectory. One such landed with shattering force not fifty yards from the spaceship, made it bounce so violently that Hart thought he was a goner for sure.

But there were more hits than misses. In the still abysmal dark of the lunar night he saw flash after flash from the distant craters as rocks slammed into rocks, battering—pounding—wrecking. Harder and thicker they came— The Copernicus rays went out!

Hart gave a whoop of joy and yelled the news over the radio. Encouraged by this success the bombardment started again on a new angle, all four ballistas obviously at work now. In thirty minutes of incessant hammering Ptolomey went of the same way as Copernicus, and like its fellow both violet and "lunacy" rays expired.

"Okay, now for Tycho!" Hart cried. "I'll direct you!"

This time, after the usual interval, the onslaught was dangerously near to him. Then one of those erring boulders came whizzing from nowhere, hit the nose of the spaceship and sent it pitching into the emptiness. Stunned with the shock Hart went flying— But he didn't lose consciousness.

He groped his way to his feet, the very ground rolling and shaking under him now with the incessant fall of rocks hammering into Tycho crater. Right now he felt he needed some kind of movement, release from this damnable prison which barred his view of the crater proper. If he had to be snuffed out he preferred it outside anyway, where he might have a chance to see what was coming.

"You're on the target," he said into the radio. Then with an effort. "Goodby, and good luck."

He didn't wait to hear an answer. Switching off he stumbled outside, moving stiffly in his clumsy spacesuit. For

a while he stood contemplating the amazing sight of rocks by the dozen raining one after another into Tycho—but those two obstinate rays still continued. One only could be obliterated by covering the crater with rocks, smothering the isotope's power to reflect; and the other by enough force to mash through to whatever machinery lay buried below.

FOR an hour he watched, saw the "lunacy" radiation dim to a mere nothing—but that obstinate violet ray remained. He turned back to the ship, intending to radio a change of position —but at the identical moment a "wanderer" slammed down clean on top of the ship and smashed it flat.

Hart ducked, lying flat as pieces of rock and metal whirled over his head. He got up again presently and stared back at Tycho. Still the rocks were missing that vital violet beam. He got up, raced toward it in flying leaps in the light gravity.

Staring into the crater he saw that all of it was covered except one spot of half a mile in the center—clearly the one vital spot under which lay the violet-ray machinery. Somehow the boulders had got to be directed right onto the target center.

He was baffled for a while, then he unstrapped his heavy torch from his belt. It was possible that giant 500-inch reflector on Mount Wilson would see his signal . . . He ran to the clear patch, knee deep in isotope, its power zero without the sunshine. Kneeling down he flashed the torch on and off continously for nearly ten minutes—then he left it on, bulb Earthwards, and hurried to the safety of the crater edge.

Not five minutes afterwards the rocks started to fall more inward in their flight towards the crater center. His signal had been seen then. Breathless, he watched. Nearer—nearer— Then there was a direct hit!

Several things happened at once. A mass of boulders crashed right into the crater's interior, putting out the violet ray but at the same time hurtling Hart upwards from the force of a titanic explosion. Probably some power had been stored down there to drive machinery and had blown up—

Hart thought he would never stop rising, so slight was the gravity and so vast the explosion. But that he must fall back he well knew—and to death. His spacesuit would rip. Not that it made much difference anyway. He was doomed—

IT WAS Beryl's eager eyes that looked into his as his senses returned. His spacesuit and helmet had gone and he was lying on a rough bed with head propped up.

"Berry!" he gasped hoarsely. "How —? What—?"

"You're all right," she said softly. "And I've radioed back to dad to stop the bombardment. Thank the stars that that explosion blew you up or I might never have found you . . ."

She hurried into an explanation.

"When you said that your machine was wrecked I remembered Doc Andrews having said that there were spaceships in Tri-Konam. I got one overhauled immediately and set off into space without dad's knowledge. Being new Moon I figured I could make it—and I did. I kept clear of the boulder stream, found you more by accident than design, dropped a gadget this ship has got—an attractor beam— ,And there we are!"

Hart nodded slowly, caught her hand.

"Space is ready," he said quietly. "Luna is conquered— But does she look different without her streaks and rays!"

The captain's gun spat its beam of flame . . .

By DAVID WRIGHT O'BRIEN

This missionary was no missionary to the raiders who came to loot a tiny world of its treasure—he was more like a devil!

IT WAS scarcely a week before the God-forsaken little planet of Igakoru was due for its notoriously unbearable "scorch season," when the decrepit, incalculably ancient space cargo tramp ship moved dispiritedly into mooring at that planet's single, rust-eaten spacewharf.

The name of the tramp space cargo carrier—scarcely discernible any longer through its paint scabbed, filthy hull—was *Venus Maiden;* the name of its Skipper, "Cap" Hutch.

While the glamorless space tub's obsolete electrawinches began laboriously to unload its twice-yearly supplies on Igakoru's wharfside, the skipper was first ashore with the consignment receipt papers.

Cap Hutch was as lumpy, as paint scarred and as dirty as the space ship he commanded. He was also almost as old. Rumor through interplanetary space trading posts had it that Cap had never bathed since *Venus Maiden* had received her last scrub down, and few people could remember that far back.

As previously stated, the afternoon of his stopover on Igakoru was scarcely one week before that planet's coming "scorch season," and consequently Igakoru was already beginning to get a taste of the terrific heat which would

soon descend upon it.

Perspiration cascaded down Cap Hutch's forehead as he moved quickly across the spacewharf toward the shaded shelter of a small, *duralloy* dock shack standing some hundred yards off from the space mooring platform.

In his damp, pudgy right fist, Cap clutched his papers, and in his left a handkerchief with which he tried futilely to mop the waterfall from his bald forehead. Being exceedingly plump and more than a little seeped in Venusian whisky, the skipper of the *Venus Maiden* waddled precariously from side to side as he made for the dock shack.

By now the skipper was able to see the faint, almost scorched-out lettering inscribed on an equally bleached signboard of *tawnalloy* above the door of the shack.

CARDIGAN & BENNETT
VARDIUM MINES FED. INC.

The space tramp skipper grunted as he saw the sign, put his head down once more, and hurried on.

"Hope Cardigan's off in his damn mines. Hope it's Bennett I have to break the news to," the skipper muttered wheezingly to himself.

By the time the skipper was three fourths of the distance from wharf to shack, he was wheezing badly, and by the time he finally clambered noisily up the steps of the shack, he could hardly stand erect. He leaned against the wall, knocked twice on the door and stood back to let those inside expend the energy of opening it for him.

STEPS sounded inside the shack, moving to answer Cap's knocking. The door opened, and a short, black haired, space-bronzed young man with incredibly wide shoulders stood there grinning at the wheezing Cap.

Although too spent to utter anything but a choked grunt, Cap Hutch thought: "Dammit—Cardigan. Why couldn't it have been Bennett?"

"Well, I'll be damned, Cap," the short, wide-shouldered young man exclaimed in sardonic amusement. "I haven't ever seen you hustle like this, even for a free quart of Venusian booze. What's up with that space sow of yours? Is she getting ready to explode?"

Still unable to talk, the tramp skipper shook his head and staggered into the small shack where he sank breathlessly grateful to a chair.

The big-shouldered young man closed the door behind them and walked across to a chair and a table where two glasses and a bottle stood waiting. Casually, he began to fill the glasses from the bottle, speaking as he did so.

"Native hooch," he commented. "Distilled in our lousiest planet swamp by one of my Igakuroan foremen. Ninety-nine and nine-tenths cosmic alki. If you had a hair left on that vacuum you call a head, it'd take it off with the first snort."

With a filled glass in either hand, the young man crossed to where the tramp skipper still sat wheezing and handed him one. Then he lifted his own aloft.

"Here's to twice-a-year, Cap. It's good I don't have to see more of you."

The young man raised his glass, drained it in a gulp, glanced at the empty bottom and smacked his lips.

"Lousy," he said, "but I've learned to love it."

Cap Hutch had finally caught his breath enough to speak. At least he opened his mouth to do so. Then he glanced at the glass in his hand, changed his mind, and lifted it to his lips. He took a long draught, downing almost half of the crimson liquid.

The young man watched him in amusement.

The skipper shuddered, made a face, looked reproachfully from the glass to the young man, then said:

"You shouldda warned me, Cardigan. I almost burned my tongue out."

"You looked like you needed it, Cap," young Cardigan said. "You almost broke your neck—in all this heat—getting over to the shack here. Mind if I ask you again what's up?"

Cardigan's question seemed to bring the skipper back jarringly to the point. He jerked back in his chair.

"Almost fergot!' he exclaimed, aghast.

Big-shouldered, short-statured Cardigan stepped over to the bottle on the table, refilled his own glass, and carried the bottle back in his other hand as he moved over to Cap Hutch again.

"Do you ever get to the point, Cap?" Cardigan demanded. "For the last time, what's up?" He frowned. "Something go wrong with any of the cargo consignments you had for me?" His voice took on a flat hardness, making the tramp spaceship skipper shake his head quickly.

"No, not on nothing like that, Cardigan. So help me. I never messed a consignment fer you yet, so help me. I—"

Cardigan cut him off impatiently.

"Get on with it, then."

"I got other kinza bad news fer you, Cardigan. I wanted to get here to the shack afore them, so's you'd be warned in advance." The skipper downed the rest of his drink with a practiced backsnap of his head. Again he shuddered.

"Them?" Cardigan asked, the humor leaving his gray eyes. "What do you mean, 'them'?"

CAP HUTCH squirmed his bulky body uneasily in his chair. He opened his mouth to say something, changed his mind, and gulped.

"Well?" Cardigan demanded impatiently. "Speak up! What's it all about? Who're 'they'?"

The space tramp skipper took a deep breath.

"My passengers," he said.

Cardigan looked amused, then puzzled.

"Passengers! Don't tell me you're starting to buck the luxury liners' business by carrying passengers?"

Hutch grinned feebly at this amiable barb at the *Venus Maiden.*

"Hardly so, Cardigan," the skipper said.

"Where are your passengers headed for, Hutch?" Cardigan asked casually.

"That's what I was about to tell you," the older man wheezed. "They're getting off here."

Cardigan had been filling the tramp skipper's glass. Now, at the last words he paused, glaring stonily at Hutch.

"Repeat what you just said," he ordered flatly. "Repeat it slowly."

"They're getting off here," old Hutch mumbled apologetically. "Leastwise, they plan to."

Cardigan filled the rest of the tramp skipper's glass and handed it to him. The older man took it with a slightly trembling hand.

"They'll have to alter their plans, then," Cardigan said calmly. "We don't advertize for colonists and poachers on Igakuro. You could have told them that when they booked passage. It would have saved them a lot of trouble."

"You can't stop 'em from coming here, Cardigan," the space skipper protested weakly.

"Who in the hell says I can't?" Cardigan demanded. "All workable claims on this planet are ours, by law. Any interplanetary poachers will find them-

selves permanently dead if they try to—"

"They ain't poachers," the skipper broke in. "They got a written and signed habitation permit from the Interplanetary Zone Governor hisself to stay here as long as they like!"

Young Cardigan stepped backward, thumped the bottle resoundingly on the old *duralloy* table.

"The hell you say!" he snapped.

"If you'll lemme tell you, Cardigan," the space skipper pleaded, "I'll explain why. You see, they ain't poachers, or traders, or anything like that. They're missionaries."

"Missionaries!" The word burst from young Cardigan's lips like a bombshell. He gaped incredulously at the skipper.

"S'trewth, gawdamighty!" Cap exclaimed.

"Here? For Igakuro?" The amazement was still in the space-bronzed young trader's voice.

"For here. For Igakuro," the skipper said flatly.

"How many?" Cardigan demanded, after a second's pause.

Cap Hutch wet his lips, looked imploringly at the bottle on the table, then raised his hand, showing two fingers.

"Good God!" Cardigan said disgustedly. "Two missionaries!"

"One ain't quite," said the space tramp's skipper. His eyes went back to the bottle, stayed there. "One is a—"

THE sound of footsteps ascending the steps to the shack porch sounded suddenly, then, cutting off the space skipper's sentence. Both men's glances went to the door. It was Cardigan who spoke first.

"That sounds like your passengers," he said grimly.

The footsteps had stopped now before the door. Then a swift, imperious tattoo sounded loudly upon it.

The skipper looked up at Cardigan.

"I tried to tell you so's you'd be in the right frame of mind when you met 'em," he said.

"I'm in the right frame of mind," Cardigan said. He stepped to the door, his hand on the knob, turning to the skipper. "They got their passage back paid for?" he demanded.

The skipper opened his mouth to answer.

"They'd better have," Cardigan said grimly. He jerked the door open, stepping back as he did so.

Two people stood there in the doorway, a tall, lean, angular middle-aged man dressed in a severe black tunic, and a small, slim, blonde young woman whose feaures were half-hidden, inasmuch as her companion had taken a position slightly in front of her.

"How do you do?" the tall, black-tunicked stranger said. His face was expressionless, as expressionless as the deep voice that spoke the greeting. His somber dark eyes seemed to sweep the room and its occupants disapprovingly.

"Cardigan," stammered the space tramp skipper, scrambling to his feet foolishly. "This here is Parson Zender, the missionary, and his daughter, Miss Zender. Parson, this is Cleve Cardigan."

"Reverend Zender," the tall, unsmiling missionary corrected the skipper reprovingly; "not Parson."

Cardigan's expression was now erased of emotion, though he wore a polite smile.

"The skipper was just telling me about you, Reverend Zender," he said evenly. "Won't you and—ah—" he glanced at the slim blonde girl who was still half concealed behind the missionary, "—Miss Zender step inside?"

The pair stepped into the shack, and for the first time Cardigan clearly saw

the girl. His eyes widened and he drew in his breath.

She was slim and blonde, as he'd observed at first; but her face, which had been half hidden, was a remarkably pleasant surprise. Oval, untinted by the artifice of cosmetics, it was nevertheless quite lovely. A small, pert, slightly tilted nose, hazel eyes, long-lashed, a soft, pretty mouth, all combined to show Cardigan that if this girl had the same name as the man beside her the resemblance between the two stopped there.

Cardigan tried to catch her eye, but he saw that her attention had been taken by the bottle on the table. He felt, rather than saw, her shocked appraisal of the object.

Reverend Zender had seen the bottle, but evidently deciding wisely to ignore it, turned his back on the table, not taking any of the four or five chairs in the room, and addressed Cardigan.

"Skipper Hutch has explained to you why we have come here?" the missionary demanded.

"Yes," said Cardigan. "Yes, he has."

"The Governor of this Interplanetary Zone informed me that you will be only too happy to establish some sort of quarters for Miss Zender and myself," the Reverend Zender said.

"Did he?" Cardigan asked noncommittally.

"He did," Reverend Zender said firmly. "I expect they will be suitable for—"

"—An overnight stay until the *Venus Maiden* pulls out again tomorrow morning," Cardigan broke in.

REVEREND ZENDER'S head snapped back. He stiffened.

"What was that, sir?

"Do you plan to stay on the planet here rather than aboard for tonight?" Cardigan asked amiably.

"I think you misunderstand me," the Reverend declared a bit testily, turning to glare at the skipper, "or that the skipper neglected to inform you fully of our plans here."

Cardigan seemed puzzled. He looked reprovingly at the haplessly squirming skipper.

"What's that, Cap? Are you staying over on Igakoru longer than a night? Staying two nights?" Cardigan asked.

"We are staying here permanently, sir," the Reverend Zender said. "Undoubtedly Skipper Hutch didn't inform you of that fact." He tried a smile, his first in Cardigan's presence. Cardigan suddenly realized why the Reverend Zender remained grave faced. He didn't look any more pleasant when smiling.

Cardigan returned the smile.

"Why, Reverend, that's quite impossible. Didn't anyone tell you?" He paused. "We don't have room for you here, and this is no place, certainly, for women or missionaries. I'm really very sorry. Someone must have misguided you concerning this place."

The Reverend Zender was frowning. "This is Igakuro planet, is it not?" he demanded. "There are poor, Godless, native Igakuroan tribes on this planet and its chain of asteroids, are there not?"

"This is Igakuro," Cardigan answered evenly. "And as for Igakuroan natives living on this planet and some of its adjoining asteroids, of course they do. However, I don't believe you could pity them to the extent of calling them poor. And as for gods, they seem pretty well equipped. One swamp tribe I know of has at least a dozen gods right at the moment."

Wrath suddenly crackled in the cold dark eyes of the Reverend Zender.

"You have been making sport of me, sir!" he snapped.

Cardigan shook his head, leaned back against the table and picked up his glass and the bottle. He poured a glass of the crimson liquid casually as he spoke.

"No," he said quietly. "I haven't been making sport of you. I have just been telling you in as polite a fashion as possible that I'm top dog on this planet. I'm Cleve Cardigan. I've staked Igakuro for twenty-five years on a thoroughly legal Federation Claim. That gives me the right to drill as much *vardium* out of this planet in that time as I can, providing it's peddled to the Federation. That makes me pretty damned well boss around here, understand?"

"I still do not understand you, Cardigan," the Reverend Zender said. "Are you intimating we are unwelcome here?"

Cardigan filled his glass to the brim, put the bottle back on the table, looked up at the missionary.

"That's right," he said amiably. "You aren't wanted."

To Cardigan's astonishment, as well, apparently, as that of the Reverend Zender, the girl broke in.

"Why?" she demanded suddenly. "Why aren't we welcome here, Mr. Cardigan?"

CARDIGAN still held the filled glass in his hand. He looked across the top of it almost abstractedly.

"I've stated two reasons," Cardigan said. "Two very excellent reasons. This is no place for a woman, and there is no room here for a missionary. I think those should be sufficient to make my point clear, don't you?" He looked sardonically at the girl.

She shook her head. "No, I don't," she said quietly. "In the first place, I have been with my father in many far flung space outposts. I stood the rigors of all of them. This shouldn't be different. Secondly, there is room for a missionary wherever decency and the word of God has not been spread. Igakuro is such a place."

Her head was tilted as she spoke, and her cheeks flushed slightly in anger, making Cardigan again conscious of her loveliness.

"Igakuro isn't any half-civilized Martian sub-planet, Miss," Cardigan said. "It's tougher than anything you or your father have ever encountered. The 'scorch season' is just a week away, for one thing. Have you ever heard of Igakuro's 'scorch season'?"

The Reverend Zender cut in.

"I never venture to establish a new mission on a planet about which I know nothing. I have studied the scant histories of Igakuro, its native inhabitants, the physical circumstances of the rigors of existence on it, a little of the native tongue—in short, all I could find. I am well acquainted with the nature of this planet."

"But this," said Cardigan drily, "is the first time you've ever been here."

"Nevertheless, sir," said the Reverend Zender, "you cannot send us away. I have permits perfectly in order. You can refuse us assistance, if such be your kind, but we will stay."

Cardigan abruptly turned his back on the missionary and his daughter. He spoke to Cap Hutch.

"Pete Bennett will be here in a few minutes, Cap. You can look over the consignment papers with him. He'll sign them for you."

Cardigan stepped to the door. He turned to the man and girl.

"You're right about your legal permission to stay here on Igakuro, Reverend," he said coldly. "But you're also right about my refusal to help you. You'll have to get along as best you can, with no help from me, if you're foolish enough not to leave in the morning."

"We are not leaving," the Reverend Zender replied.

Cardigan shrugged.

"As you like. But at the moment you are standing on property which belongs to my company. I wish you'd get off as quickly as convenient."

The door slamming behind Cardigan shook the *duralloy* shack as if it had been tin. . . .

CHAPTER II

THE smooth-hulled, black-sheened space cruisers that put in at Asteroid Eighty — a deserted and *vardium* drained spacial island in the Igakuro group—arrived there on the evening of the day the *Venus Maiden* had put in at Igakuro itself.

But these space cruisers—there were two in all—expected and found no welcoming delegations, native or earthmen. The men aboard the cruisers had chosen Asteroid Eighty for the very reason that they knew it to be abandoned—and knew, also, that it was both within quick striking distance of Igakuro, and outside of even casual range of attention from that planet.

Several hours after disembarking, the men of the black-sheened cruisers had established themselves in the rusted and rotting mine shacks which still stood beyond the abandoned mooring wharf of the asteroid.

In the first of these shacks the leader of the group which had arrived in the cruisers assembled six of his underlings for discussion which would forge the last of their plans into a striking weapon.

The leader of the group was tall, an earthman well over six feet five inches. He was, in spite of his height, extraordinarily fat. His huge, corpulent body possessed long, thickly powerful arms which gave him an ape-like appearance further carried out by his slight stoop, massive chest, and heavy, matted shock of black hair.

In the asteroid chains off Venus this brutish giant of a man had been called "The Strangler" by the harassed members of the Interspacial Border Patrol who had sought him so long and unsuccessfully for his many depredations.

Among his varied and often hideous crimes were his gang attacks on peaceful outpost trading colonies, native villages, and small, isolated Interspacial Border Patrol posts. These attacks, always in outnumbering force and with snake-like swiftness, had torn tribute of a hundred varieties from their victims. The trading colonies paid in their small wealth, the native villages in materials which trading earthmen sought honestly, and the patrol posts in guns and ammunition for the restocking of the brigand band's arsenals. In common, they all paid in blood.

In contrast to the name bestowed on him by those who hunted him, the leader of this band was called, by his followers, "Satan." The name derived from his legal identification, "Saidun," to which he had been born, and had been bestowed on him by a space freebooter, long dead, who had been one of Satan's primary instructors when the brutish young man was but a novitiate in the field of space piracy.

Satan was no longer young, however, and though his black thatch of uncombed hair showed no gray, the villainous giant had passed forty.

His crew, consisting of twenty-three cutthroats of some seven planetary origins, were of varying ages, complexions, sizes, and temperaments. Each had been selected by Satan carefully, and each served his brigand master well.

THE six who met with the leader in the first of the abanadoned mining

shacks near the rotted mooring wharf of the asteroid were a fair sample of the rest.

Polo, the pockmarked Venusian renegade, was a squat, powerful, young man. Utterly hairless, he was distinguished by his completely toothless smile and jutting, rock-hard jaw.

Malveau, the most intelligent of the group, save Satan himself, was a tall, thin, mustached man with cold gray eyes, black hair, and the slim, pale hands of a woman. He was an earthman.

Uska, the Junovian,was blind in one eye, and the ugly scar flesh which covered the eyeless gap did nothing to enhance his paste-complexioned, short-statured, doughy lumpiness. On occasions demanding his side-line specialty, Uska served as chief torturer.

Wenskus, another earthman, was of medium stature, slim-shouldered, bespectacled, round-faced, unshaven. He had been discharged from the Interspacial Lines ten years previously when, as master of one of their largest luxury liners, he had deserted his post to let eight hundred passengers perish in an uncontrollable blaze. For Satan he served as an excellent space navigator and pilot.

Saturn was represented among the brigand lieutenants by Jekka, a saffron-skinned brute with the expressionless eyes and sadistic mouth of a killer. Next to Satan, Jekka was the burliest member of the band.

The last of Satan's lieutenants was a slim young Venusian who had deserted from his service with the Space Patrol. His name was Brona, and his knowledge of atomic cannon and ray gun repair was invaluable to the arsenal of the band.

Satan nodded to each of these lieutenants as they entered the shack and took places around the short, square table in the center of the room.

He waited until all were seated, and waited fully another minute after that, gazing at the blunt ends of his big fingers, before he spoke.

"There are only two of you here who realize the full purpose of our stop on this asteroid," he said. "Wenskus, who plotted our course of escape from the Venusion chain, and Malveau, who planned our next operations with me."

There was a momentary silence, broken by Uska, the partly blind Junovian.

"Iss not thiss sstop for hideout until border patrolss are sshaken?" he demanded.

Satan's big, heavy jowled features twisted in the semblance of a smile.

"That is what most of you were told," he said.

Polo ran his tongue over toothless gums in surprise. His pockmarked, Venusian features were expressionless, however, as he said:

"Then what are the plans to be?"

Satan waited a moment before answering. Then he said cryptically:

"Our biggest haul in some time."

THERE were no murmurs of surprise from his audience. His lieutenants merely continued to fix him with their unwinking stares, waiting for him to continue.

"We are safely beyond the reach of the annoying border patrols in the Venusian belt," Satan continued. "It is possible to assume that their intensified search for our cruisers will go on for another three or four months before they realize we are no longer operating in that territory. And when they realize we have taken to our heels, the reports of our work in this sector will begin to drift into their outposts here. By that time we shall move on again. And by that time, thanks to the job ahead of us, we shall have added more men and

several more cruisers to our complement."

Satan paused to look around the circle at the faces of his lieutenants once more. They were still impassively attentive.

"Our haul this time," Satan went on, "will be *vardium*. *Vardium* in such quantity that certain sources in the Martian government will be delighted to pay us handsomely for it."

Now, at last, surprise flickered briefly on the faces of his lieutenants. Several turned, to exchange glances.

"Much of the *vardium* I speak of has already been mined and processed into *var-dust* for us," Satan went on. "The rest of it will be mined and processed before the scorch season in this belt is over. We can carry enough *var-dust* in one cruiser to bring a small fortune from the Martian sources I mentioned before. The Martians will pay heavily for the valuable munition-making soluble of which they have been deprived by the Interplanetary Federation." *

Uska, the Junovian, spoke up again.

"But who iss mad enough to mine thiss vardium for uss and processs it alsso?"

Satan smiled. "Two young mining engineers on the central planet in this asteroid belt, Igakuro," he said. "Their names are Cardigan and Bennett. They've mined Igakuro for the past year without sending out any new shipments of *var-dust* to earth. The processed dust is stored in subterranean vaults, waiting a shipment two months after the scorch period comes on this belt. In the meantime they're working the natives extra shifts to mine and process more of the stuff before shipment time."

Brona, the slim young Venusian, spoke up now.

"What are the risks involved?" he asked. "Is Igakuro heavily armed? Are the patrols in this area heavy?"

Satan smiled again.

"There is a small detachment of Igakuroan natives which has been trained by Cardigan. They are poorly armed. Electra-rifles are their only weapons. I understand that several obsolete atomic cannon are concealed in small shacks on either side of the space mooring wharf. Otherwise, they are empty-handed."

Polo spoke now.

"The guns from our cruisers could frighten the native guards back underground," he smirked.

"WE WILL not have to use the cruiser guns," Satan said. "They might destroy valuable equipment for the mining that must continue after we take over. No. It will be a simple matter to surprise and overpower the two earthmen and whatever natives we encounter."

"Supposing the earthmen resist?" asked the saffron-skinned Saturnian, Jekka. "Are they to be killed?"

"Not if it can possibly be prevented," said Satan. "They are to be kept alive to work the mines and oversee the processing of the *var-dust* until it is collected in sufficient quantity. Our operations might be considerably hampered if we had to tend to those details ourselves. The delay might be dangerous."

"And the natives?" asked the burly Jekka.

"Kill as many of them as you think necessary. They must be impressed with our superiority," Satan said. "Those devils must work those mines as if their lives depended on it. Their lives will, in fact, depend on it."

Polo put the next question.

* After the Interplanetary War I, started by Mars against Earth, Venus, Juno and Saturn was won by the latter--which then formed the Interplanetary Federation- Mars was omitted - Ed

"When do we strike?"

"We start for Igakuro tomorrow afternoon," said the leader. "We will reach there shortly after darkness has fallen the following day. The place should be in our hands in less than an hour after that."

"How long we sstay on Igakuro?" Uska demanded.

"A month should prove sufficient," Satan said. "The scorch season will be ending, then, and the danger of patrol visits will increase. We can be out of this zone and enroute to Mars before suspicion is aroused."

A murmur of approval greeted this. Satan stood up. Under the black bushes of his brows, his pale eyes glinted coldly.

"You can spread the word of our plans to the rest," he said. He turned to the tall, thin, black-moustached earthman, Malveau. "Wait a moment. I've something more to discuss with you, Malveau," he ordered.

The other five lieutenants rose on this obvious signal that the discussion was at an end. They filed out of the shack until at last there was only Satan and Malveau.

The massive, brutish leader turned to the slender, cold-eyed earthman. He grinned.

"It didn't occur to any of them to question the transportation problem we'll encounter when we use one of the cruisers to carry the *var-dust*," he said.

Malveau grinned briefly in reply. Then said:

"It won't occur to the others, either. But if it does, I have a simple explanation ready to assure them. You've made the selections of those who will be left on Igakuro and those who will be taken with us?"

Satan nodded.

"The choices were fairly easy. Our band should be considerably improved by the elimination of some dead timber. And, of course, the splitting of the profit on this venture will be much more simple among an even dozen of us, rather than twenty-four."

"We shall not leave them on Igakuro alive?" Malveau asked.

"And run the risk that a patrol ship might stop on the planet and clap them in custody?" Satan was amused. "Certainly not. We can't risk anything of the sort. Those twelve unfortunate selections I've made must be snuffed out before we leave Igakuro. It is the only sensible way, and it prevents any possibility of talk."

MALVEAU pulled a thin, black Junovian cigar from his tunic pocket, a bit off the end with his white, sharp teeth, lighted it, and blew a cloud of smoke ceilingward.

"Are you quite certain that your reports on the condition at Igakuro are correct?" he asked.

"Naturally," Satan said. "My Martian source had it all checked very thoroughly by an agent posing as a member of the *Venus Maiden*—that's a space tramper which carries supplies to the planet twice yearly—on that tub's last visit to Igakuro six months ago."

"Then the space tramp you mention should be due there at some time within this week," said Malveau, "if it makes a twice-yearly trip to the planet."

"Certainly," the massive Satan asserted. "It is moored there at this very moment. It will leave tonight, perhaps, but more likely tomorrow."

Malveau's eyebrows lifted.

"What does it carry?"

"Nothing of importance," Satan shrugged. "It would not be worth while to seize it."

"But a small crew, one cruiser, could do the job—" Malveau began.

His leader cut him off.

"You forget, Malveau," Satan declared, "that our operations are no longer on such petty scale. We no longer need bother with such small loot as the *Venus Maiden* would provide."

Malveau smiled faintly.

"We seem really to be branching into bigger fields, my friend," he observed.

Satan sat down, running his huge hand through the thick, tangled black shock of his hair. His eyes, for an instant, glittered more coldly than before. The expression on his face was momentarily far-off.

"If we deliver the *var-dust* as agreed to the Martians," he said, "we will not have to worry any longer about niggardly operations. There will be many more tasks they can find for us, for equally tremendous compensation."

Malveau's eyebrows went up again, but he said nothing.

Satan smiled to himself, then looked up at his moustached lieutenant, grinning.

"We make no mistake, eh?" he said. . . .

CHAPTER III

FOR fully a minute after Cardigan's departure, there was an uncomfortable silence inside the shack. Finally the Reverend Zender turned to stare coldly at the bottle and glass on the table.

Cap Hutch spoke.

"I told you, Parson," he said. "This Cardigan is young, but he's tough, obstinate. He don't want nobody on Igakuro except himself, his partner, and the natives who work his *vardium* mines for him."

The girl spoke. "Obviously, he isn't a strongly religious person," she said. "He seems hardly God-fearing."

"Cardigan," the skipper observed wryly, "don't fear nobody. Any one in the interplanetary space trading bunch can tell you that. He fought his way to where he is, from the time he was sixteen, in ten short years. Shipped aboard his first space tramper when his folks were killed. Worked as roustabout all over space. They usta kid him about his height. But he had shoulders that were wider than any six-footer's I ever seen. Used 'em, too, as well as his fists and an atomic pistol he could shoot the whiskers offa cat with."

The Reverend Zender took his eyes from the bottle and glass on the table. He spoke to the tramp space skipper.

"You mentioned before that he has a partner with him in this *vardium* mining venture on Igakuro. I think I heard Cardigan call him Bennett. Is he of the same stripe?"

"Oh, Pete Bennett," Cap Hutch said. "Yup. He's Cardigan's partner. Youngster, too, this Bennett. About the same age as Cardigan. Mebbe a little older, though, mebbe closer to thirty. He's a lot more easy going than Cardigan. Tall, slim feller. As blonde as Cardigan is brunette. Mebbe he'll give you and your daughter a hand."

"Would Cardigan permit him to?" the girl asked.

"Cardigan couldn't say no," Cap Hutch declared. "They're fifty-fifty partners here, though Bennett thinks Cardigan's tops and does about the way Cardigan wants in everything."

They hadn't heard the light tread mounting the steps of the shack, and now all three were surprised as the door of the shack opened suddenly, revealing a tall, tow-headed young man who grinned at them quizzically.

"Hello there," the new arrival said. He saw Cap Hutch then and added amiably, "Hiya, Skipper. Looking for me? Where's Cleve?"

Cap Hutch rose, smiling. "Well, Petey Bennett! I was just telling this

lady and gentleman, here, you'd be willing to help 'em out, since yer partner jest walked out inna huff."

The Reverend Zender stepped into the conversation, quickly identified himself and his daughter, then said:

"Your partner, Mr. Cardigan seems somehow unwilling to accommodate us on Igakuro at all, sir. The reception he gave us was not at all pleasant. He just left, after telling us to keep off your company's property if we intend to stay here."

PETE BENNETT looked from the missionary to his daughter. The big white grin he gave her was appreciative.

"Do you intend to stay on in spite of Cardigan's warnings?" Bennett asked. He spoke to the father, although his eyes were still on the girl.

"We do, sir," said the Reverend Zender grimly.

Pete Bennett took his eyes from the girl and shifted his amiable grin to her father.

"Cardigan is a fine chap, Reverend," Bennett said. "Don't draw any hasty conclusions about him from your first meeting. I'm sure he harbors nothing personal against either you or your daughter in not wanting you to stay on here."

"How decent of him," the girl declared with soft sarcasm.

"You see, sir," Bennett said, still speaking to the father but grinning briefly to the girl again, "Cardigan has had a slightly different life than most chaps his age. He's had to fight for everything he's gained. He doesn't hate religion, really, he just feels that any philosophy which teaches that one should turn the other cheek and live in meekness, and all that sort of thing, is haywire. Personally, I'm aware he's off base in that reasoning. However, he'll come around, if you're intent on staying on here."

The Reverend Zender extended his hand.

"Then you will assist us, sir?" he asked. "In spite of your partner's attitude?"

Bennett took the missionary's hand in a hearty clasp.

"Sure thing," he said. "If you've legal permission to be here, and are determined to stay, we can't very well act like barbarians to the only other earth people on Igakuro. Cardigan, as I said, will come around. In the meantime, I'll do whatever I can to fix you up with what you need. You can count on my half of the company property as being accessible to your needs." He grinned, then, turning to Cap Hutch. "Got those consignment papers ready, Skipper?"

The Reverend Zender took his daughter by the arm. At the door, he turned to young Bennett and bowed with stately formality.

"Thank you again, Mr. Bennett. My daughter and I will return to the space ship to remove our luggage in the meantime. Perhaps you could think of some quarters for us by then?"

"Certainly," Bennett said. "You'll stay somewhere around the stockade in which Cardigan and I are living. I'll be down to the spacewharf as soon as I have this business with the skipper settled."

The Reverend and his daughter left. The door no sooner closed behind them than young Bennett stepped to the bottle on the table and poured himself a stiff hooker of the native whisky. He turned to Cap Hutch.

"Your glass is empty, Cap. Cardigan been holding back on you? Fill up and have a snort, then we'll get to those papers."

For a man of his age and girth, Cap Hutch moved from his chair to

the bottle on the table with amazing alacrity. . . .

OUTSIDE, on the porch of the *duralloy* dock consignment shack, the Reverend Zender and his attractive daughter blinked in the white hot glare which beat mercilessly down on Igakuro.

"He seems like a decent sort, Father," the girl observed. "Very obliging, in contrast to that Cardigan person."

"Cardigan," the Reverend Zender said, his mouth tight, "seems more in need of salvation than any of the natives we shall work with."

"Mr. Bennett and the space skipper told us much that might explain him," the girl ventured.

The Reverend Zender shook his head forebodingly. "Scarcely. There is little excuse for such an attitude in a man blessed by birth with a civilized status in this universe."

They started down the steps of the shack, and, less than an instant later, almost collided headlong with a tall, sinewy massive, half-naked creature who had come around the side of the shack in a great hurry and started up the same steps they were descending.

Both the Reverend Zender and his daughter stepped back instinctively in surprise. The creature with whom they had almost collided also stepped back, looking up at them from a lower step a little stupidly. He had a low, wide skull, completely hairless. His nose was small, almost a round blob in the middle of his moon face. His lips were thick, his eyes round, red, and staring. His skin was a verdant green hue.

Zender was the first to speak.

"Why," he declared, "an Igakuroan!"

The Igakuroan was staring at Zender and his daughter with almost equal surprise. His interest seemed especially centered on the girl; his round eyes moving from her to her father and back again.

"Who are you, my good man?" the Reverend Zender asked. "Do you have a name?"

The massive, half-stripped Igakuroan didn't answer. He continued to stare at the two, his red, round eyes flickering weirdly against the green of his face.

"Try his dialect, Father," the girl suggested.

The Reverend Zender hesitated a moment. He summoned up what he knew of his scanty fund of Igakuroan dialectics, then haltingly rephrased his question in the native's tongue.

Still the Igakuroan didn't answer. He continued to stare at the two.

The shack door opened behind the missionary and his daughter. They heard Pete Bennett's voice.

"Come on, Torgan. What's been keeping you?"

The massively muscled Igakuroan stepped around the missionary and his daughter and started up the steps, looking back over his shoulder at the two earth people as he did so.

"Coming, Bennett Boss," the Igakuroan who'd been called Torgan said gutturally. "Stop to look, see two new earthmen. Who they?"

The Reverend Zender suddenly flushed crimson. His daughter smiled faintly, touched her father's arm.

"We'd better get our baggage from the space ship, Father," she suggested.

They moved down the steps and started toward the wharf. . . .

CHAPTER IV

WHEN Cleve Cardigan left the dock shack, he went directly to the combination compound-stockade

some three miles from the mooring wharf, where the Cardigan-Bennett Company had its headquarters, and where he and his partner had established living premises for themselves.

During the three mile journey to the compound-stockade, the terrain which lay between there and the wharf-mooring location became increasingly heavy with an *astera-tropical* jungle growth. Cardigan and Bennett had originally decided on the location of their headquarters because it was conveniently established in regard to the small shaft mines they'd first bored within a ten mile radius of it, and also centrally located near one of the largest Igakuroan tribal camps from which they drew their mining labor supply.

Now, even though the shaft borings were being carried out in increasingly more distant locations, Cardigan and his partner had decided to keep their compound-stockade headquarters and living establishment where it was, since it continued to be valuable in proximity to the space landing wharf of Igakuro.

Arriving a little later at the compound stockade, Cardigan, still angrily disturbed over the argument he'd had with the missionary and his daughter, had nevertheless managed to force himself into getting some sleep, before starting on his every-other-night inspection of their mines lying back in the *astera-tropical* jungles.

Cardigan and his partner alternated nightly on these inspection trips of the mines. And because of the approach of Igakuro's "scorch season," during which time they would be forced to operate their mines entirely at night, these trips were now increasingly important in the gradual establishment of night-operating mining crews.

When Cardigan had had sufficient sleep, consequently, he rose and attired himself in the *astera-tropical* garb needed for his inspection tour, and set out into the jungle slightly before dusk.

It was due to his absence, and the additional fact that the Reverend Zender and daughter were unable to get their luggage unloaded from the *Venus Maiden* until almost dusk, that Cardigan was unaware of his partner's establishing the missionary and the girl in the compound-stockade until almost noon of the next day, when he came back from his inspection.

When he came up the trail to the compound-stockade, in view of the first of the native huts which flanked it, Cardigan encountered the girl.

Cardigan was tired, mire-splashed, unshaven. His nerves were none too settled from an unusually troublesome inspection round. Over his shoulder was slung an electra-rifle, and strapped to one side, an atomic pistol.

The girl had just come from one of the native huts. She wore a white tunic which, in spite of the severity of line, wasn't quite able to conceal the slim, appealing youthfulness of a decidedly attractive figure.

BUT Cardigan noticed none of this. He felt only a sudden swift surge of rage. He stood there in the trail as the girl, seeing him, started smilingly in his direction.

"Just back from the mines, Mr. Cardigan?" the girl called, still moving toward him. "Mr. Bennett set my father and me up in one of your extra compounds. I hope you'll forgive us, but we couldn't sleep on the docks, you know."

Cardigan still didn't speak, until the girl was several yards from him.

"I thought I made myself clear yesterday as to what I thought about you and your father's staying on?" Cardigan demanded then.

The smile left the girl's face. She stopped.

"I thought you'd at least be a good sport about it, now that you realize we're determined to stay."

"Is the *Venus Maiden* still in dock?" Cardigan asked.

The girl nodded.

"Then you and your father still have time to get yourselves back aboard her," Cardigan said.

"We have no intention of doing so," the girl answered.

Cardigan started to say something, then clamped his jaws shut, gave the girl a savagely angry glare, and stepped around her. He stamped off down the path to his compound in silence. . . .

PETE BENNETT was playing a game of solitaire on a porch table when Cardigan stamped up the steps to their compound.

"'Allo, Cleve," he said amiably. "How was the tour?"

Cardigan unslung his electra-rifle, unbuckled the belt which held his atomic pistol holster, and dropped the weapons into a corner. He turned to Bennett, both hands on his hips, eyes filled with disgust and anger.

"I thought you'd be out at prayer meeting, Pete!" he snapped.

Bennett grinned at this and continued to turn over cards in search of a red Jack for a black Queen.

"There haven't been any yet, Cleve," he answered casually. "But we ought to sit in on the Reverend Zender's first one, at that, don't you think?"

"The hell I think!" Cardigan exploded.

Bennett found a red Jack for the black Queen and quite triumphantly placed it in order.

"I was beginning to think that would never turn up," he said.

Cardigan's lips worked, but he cut off the words that started to them.

"To hell with your game!" he snorted. Then he turned away and stamped off the porch into the compound.

Pete Bennett smiled for a moment, then put down the cards, rose, and followed Cardigan inside. He found his partner stripping his soaked and dirty tunic shirt from his wide, muscular young torso.

Bennett stood at the door to Cardigan's room, watching him with the same amiable smile on his lips. Then he said:

"Come on, Cleve. Snap out of it. You're acting like a five year old kid."

Cardigan didn't answer that. He sat down on the edge of his bunk and began to doff his insulated vardium boots. He grunted and cursed through the process, still paying no attention to Bennett.

"You're making yourself ridiculous, old man," Bennett said easily. "We've no right to throw the Zenders off. The only rights that are exclusively ours on this planet are the vardium rights. Since there's nothing that can be done to get them off, and since they'll be the only other earth people on Igakuro, we might as well make the best of it."

Cardigan removed his right boot with a vicious tug. He let it thud heavily to the *duralloy* floor, then glared up at his partner.

"You have it all figured out, haven't you?" he asked with thick sarcasm.

Bennett shrugged.

"Hell, Cleve. You figure it out some other way."

Cardigan stood up. "All right," he said, suddenly calm. "I'll tell you another way I've figured it out. I'll tell you things you should be bright enough to figure out yourself."

"Sure, Cleve, go ahead," Bennett said.

"Number one—and of first importance," Cardigan began, holding up one finger. "This is no time of year for us to be involved with outside trouble, of

any sort. The scorch is coming on, and it's a tough enough job mining our vardium and keeping the natives in hand during that period under any circumstances. That reason would hold against the desirability of strangers here no matter who they were. You understand that?"

"Sure," Bennett began, "but—"

CARDIGAN cut his partner off, holding up a second finger beside his first, and plunging on.

"Reason number two," he said, "is idiotically clear, and it is tied to the first reason. I said strangers—no matter who they were, mind you—are poison on this planet now. These strangers are double poison. They're missionaries."

"Wait a minute—" Bennett began again.

But Cardigan ignored the interruption. He continued.

"They are here with one purpose—to stick their noses into the affairs and lives of our natives."

"We don't own the natives," Bennett smiled.

"No!" Cardigan snapped. "But we pay their wages and keep them healthy with our medicines, and clean and somewhat sanitary in the compounds we've had constructed for them."

"And they," Bennett observed, "mine our vardium for us in return. It isn't as one-sided as you like to think it, Cleve."

Cardigan snorted. "You oughtta run for mayor of this place, Pete. You're really the friend of the common peeeeeepul!"

Bennett sighed, then shrugged and grinned.

"All of this doesn't get anywhere, Cleve," he said amiably. "The missionaries are here and there's nothing we can do about that part of it. And as far as I can see, there's nothing we can do about them during their stay here. In view of that, why not act sensible and treat them humanly?"

Cardigan scowled, frowned.

"They're here, all right. And there isn't anything we can do to throw them off. But there might be something we could do to make them want to leave."

"Such as?" Bennett asked.

Cardigan scowled again. "I'm not sure, yet. But I'll think of something. I can promise you that."

Bennett shrugged.

"Don't depend on my helping you scheme against them," he said. He started to turn away. Cardigan's words made him pause.

"Is it because of the girl?" Cardigan sneered. "The sight of a pretty face and a trim figure too much for you?"

Bennett looked at his partner speculatively a moment. He didn't smile as he answered.

"Don't be an ass!" he said.

Cardigan's eyebrows lifted in sardonic triumph.

"So it is the dame, eh?"

Bennett turned and left the doorway without saying anything more. Cardigan heard him clumping out onto the veranda. He grinned humorously and snorted.

CHAPTER V

THE blue murkiness of Igakuroian twilight had enveloped the veranda of the compound when Cardigan arrived there for the evening meal several hours later.

Cap Hutch, Bennett, the missionary Zender, and his daughter were already seated at the table which had been improvised to seat the unexpected guests.

Bennett sat at one end of the table, and had left the chair at the opposite end unoccupied for his partner. The

missionary's daughter sat on Bennett's right, the father on his left. Cap Hutch, looking considerably uncomfortable, sat to the left of the Reverend.

Cardigan took his seat silently, not acknowledging the presence of the girl and her father with so much as a nod.

Torgan, the massive, green-skinned, red-eyed Igakuroan was supervising the service for the table. A small, thin native did the actual waiting and menial chores.

The silence which had been created by Cardigan's entrance was broken suddenly by Bennett, who turned to the girl and said:

"You were telling us about one of the missions your father and you established in the Junovian chain," he said.

Cardigan looked up sharply, glowered, and snorted. His blond partner ignored him and continued, as Cardigan turned his attention to the food on his plate.

The girl seemed to hesitate an instant as Bennett said:

"I was interested. I wish you'd continue."

"That's about all there was to tell," the girl said softly. "It proved to be a great success, and won the natives over admirably. Father and I didn't have the slightest trouble with them thereafter."

"Miss Zender was telling us about the time she and her father ran into a little trouble with some natives on the Junovian asteroid chain, Cleve," Bennett said amiably. "It seems that a chief of one of the Junovian interior tribes was—"

Cardigan's cold sentence cut his partner off.

"I'm not interested in missionary twaddle," he said. "The next thing you know we'll be shown illustrated slides and a plate will be passed in collection."

The silence was electric. The Reverend Zender broke it. The sound of his knife clattering to the table was like an electra-cable clattering to the deck of a spacetube.

The missionary rose, glaring at Cardigan.

Cardigan looked up at him, meeting the stare unwinkingly.

"We will not trouble you any longer, sir," said the Reverend Zender. He was controlling himself with the greatest of difficulty, his voice shaking with rage and humiliation. He turned to his daughter. "Come, Carol. We'll find someplace on this planet where we will be less of an annoyance to Mr. Cardigan."

The girl was white-faced, sharing her father's anger and hurt. The look she gave Cardigan was cold, venomous. She rose from the table and followed her father to the door of the veranda.

Cardigan looked sardonically amused. He finally replied to the missionary's declaration.

"That will suit me just fine," he said.

BENNETT was on his feet by the time the girl and her father were at the door. His amiable tolerance had gone. The look he gave his partner was one of disgusted anger.

"Please, Reverend Zender, Miss Zender —" he began.

"I'm sorry, Mr. Bennett," said the missionary. "You have been very kind. But Mr. Cardigan's hostility leaves us no other choice."

The missionary and his daughter stepped out into the darkness. Bennett turned on Cardigan, his lips tight in anger. Wordlessly, he glared at his parter.

Cardigan met Bennett's stare unflinchingly, challengingly.

"You ignorant lout!" Bennett snapped at last.

Cardigan laughed, and turned his at-

tention back to his food.

The door slammed behind Bennett as he left the veranda in pursuit of the missionary and his daughter.

Cardigan looked up at Hutch, the sole survivor of the scene. He grinned.

"You like to finish the meal with me, Cap?" he asked.

The skipper of the tramp space ship was flushed, uncomfortable, perspiring. He mopped his brow with a dirty handkerchief. He sighed and managed a feeble grin.

"You sure are some host, Cardigan. Got any of that atomic hooch on hand? I need a stiff jolt."

Cardigan looked up at Torgan. The big Igakuroan had watched the scene impassively.

"Break out a bottle of the best, Torgan," he said. "The wet blanket has been lifted from the party."

Torgan grinned lopsidedly and went away to get the liquor. Cardigan turned back to Hutch.

"I think maybe you could wait around another day, Hutch. You stand a good chance of having a couple of passengers to take back to where they came from."

The tramp spaceship skipper tried to look neutral.

"I got some rocket trouble I could lay over to repair," he said. "It might be a good idea if I took this chance to attend to it, I think."

Cardigan laughed. "I think so, too," he said.

There was a momentary silence. Torgan appeared with a bottle and glasses. He set them before Cardigan. Cardigan broke the seal on the bottle, poured the scorching liquid into two tumblers, handed one to Hutch.

"Here's to bigger and better missionaries—on o t h e r planets," he toasted.

Hutch imitated the gesture of his host, raising his glass and tossing off half the liquid with a snap of his head. He put the glass back on the table, making a face and shuddering.

"It don't seem good to see any ruckus between you and Pete Bennett," the tramp skipper observed. "It ain't at all like either of you. You two was always the best of buddies."

Cardigan scowled, tossed off the rest of his drink. He stared at Hutch, lips pursed thoughtfully.

"Didn't I tell you missionaries make nothing but trouble?" he demanded.

Hutch opened his mouth, as if to refute the reasoning behind Cardigan's statement. Then he decided that it would not be the better part of discretion to remind the wide-shouldered, stocky young man that all the trouble caused to date had been his own doing.

"Didn't I tell you that?" Cardigan repeated belligerently, refilling his glass.

"Yeah," Hutch said noncommitally. "Yeah, you certainly did, Cardigan. You certainly did."

"Of course I did," Cardigan snapped. "Drink up. You're falling behind me in this bout."

"This gonna be a bout?" asked Hutch with quickened interest.

"You're damned right it is," Cardigan promised. "Come on. Drink up."

Cap Hutch swallowed the liquor left in his glass and extended it to Cardigan. The young man filled it to the brim again, and grinned.

"To hell with Bennett," Cardigan said.

Cap Hutch was busy working on his second drink. . . .

WHEN Pete Bennett came back to their compound considerably later in the evening, he saw Torgan clearing a litter of glasses and bottles from the table on the veranda.

"Where's Boss Cardigan?" Bennett demanded.

"Cardigan Boss on *Venus Maiden.* Cardigan Boss and Hutch Boss damn drunk. Take plenty bottles. Go drink on space ship, they say."

Bennett kept his anger from the Igakuroan foreman. But his lips were tight in rage as he stalked through the compound into his bedroom.

When Bennett had dressed for bed, he sat on the edge of his bunk for over an hour, smoking and frowning alternately. He rose, then, checked his *astera-tropical* gear for his trip to the mines in the interior the following day.

Some fifteen minutes later Bennett stretched out on his bunk, finished another smoke, and mentally cursed the stubborn streak in his partner until he fell asleep.

Cardigan staggered into the compound some six hours later. Early Igakuroan dawn was breaking, and the dark-haired, wide-shouldered young man was exceptionally drunk. Too drunk to remove his clothes before falling into a dead slumber across his bunk.

When Bennett rose and donned his *astera-tropical* attire, an hour after that, he stopped in Cardigan's room long enough to pick up his partner's *electra-rifle*, two or three other small items of equipment, and to scratch a brief note on a pad atop the table beside the bunk.

Bennett left, then, and went out onto the veranda where the tireless Torgan had breakfast waiting. The blond young mining engineer ate his morning snack in silence, the Igakuroan foreman watching him curiously.

"Any talk for Cardigan Boss?" Torgan asked, as Bennett finished the breakfast and started toward the veranda door.

Bennett hesitated a moment, then shook his head.

"None, Torgan. I'll be back from this inspection stretch early tomorrow morning, if he should ask. The Number Twenty *vardium* shafts need some extra supervision."

The big Igakuroan nodded solemnly.

"I tell Cardigan Boss same," he said.

Bennett left the compound. Moments later he was striding down the trail into the thick vegetation which fringed the swamplands of Igakuro. . . .

HALF a day away from Asteroid Eighty, the crews of the twin, black-sheened space cruisers were busy on the decks of the swiftly moving vessels. Satan and Malveau were breakfasting while delivering orders to lieutenants concerning the preparation and armament necessary for the raid.

The brief rehearsal for the raid would take place, verbally, in Satan's compartment, within a few hours. And a few hours after that, Igakuro would come into view.

Malveau held a thin Junovian cigar between his white teeth, a small cup of Venusian coffee almost daintily in his slender, woman-like hand. He was smiling at an observation just made by his leader.

Satan, busily gorging his great, obese body, talked as he munched food.

"Those we have decided to eliminate later will comprise the first of our raiding party to land," he said. "Should some of them be stupid enough to be killed, we shall be saved considerable trouble later." He paused. "In fact, I think it might be wise if we planned the raid so as to make it almost inevitable that some of that first group in the landing party are eliminated."

Malveau took the thin cigar from his teeth, sipped his coffee, and chuckled.

"An excellent idea," he agreed.

"Uska," Satan went on, around a mouthful of food, "shall be designated

to lead that first group."

"Uska?" Malveau was surprised.

Satan nodded. "I have noticed a certain tendency on the part of the Junovian to think too much for himself. I am not at all sure that his loyalty could be trusted should he have a chance to bring the men in behind him."

"Surely you don't think that thick-witted Junovian would contemplate challenging your leadership?" Malveau demanded.

Satan stopped munching food long enough to smile.

"I make it a point to keep in touch with the trends of—ah—thought among my men," he said. "I have heard it said that Uska has made several questioning statements on several occasions."

"Questioning statements?"

Satan nodded.

"It seems he questioned our leaving the scene of Venusian operations so soon," the leader declared. "It seems his greed was not at all balanced with good judgment or faith in my decisions."

Malveau was wordless. He put down his Venusian coffee, put the thin Junovian cigar back between his white teeth. He looked at Satan. The leader glanced up sharply, smiling ambiguously.

"Any one," said Satan, "who thinks himself clever enough to take control from my hands has only to try."

Malveau didn't say anything. The smile he essayed was only a reasonably passable one. His cold gray eyes were, momentarily, clouded and shifty.

Satan chuckled and went on eating . . .

CHAPTER VI

CLEVE CARDIGAN'S head was heavy and aching, and his tongue was coated as if by cellucotton. He blinked uncomfortably through red-rimmed, burning eyes and looked around.

He was in his room, on his bunk. He was fully dressed and his tunic was wrinkled and dirty. He groaned and sat up.

The noise of his feet striking the floor must have told Torgan that Cardigan had awakened, for the massive Igakuroan appeared at the door of the squat, wide-shouldered young man's room an instant later, a glass in his hand.

"Cardigan Boss pick up," said Torgan. He handed Cardigan the glass.

Cardigan shuddered as he drained the contents. He was never at all certain what mixture Torgan concocted to bring him out of his hangovers from native whisky, but it tasted utterly foul.

Cardigan handed the glass back to Torgan.

"Breakfast," he said. "Now."

Torgan nodded and left.

The heaviness was leaving Cardigan's head, and his eyes burned less. The perspective of the room regained normalcy. Torgan's pick-up was working according to schedule.

Cardigan rose, sticking out his tongue and touching it with his forefinger. He made an expression of distaste. Then he grinned, wondering how the skipper of the *Venus Maiden* was feeling.

As Cardigan was discarding his rumpled, slept-in tunic for fresh garments he noticed the note on the table beside his bed. It was from Bennett, stating merely that he was starting early for his inspection junket because of the necessity to make another supervision check on the Number Twenty shafts. It was signed merely with Bennett's initials.

Cardigan crumpled the note into a ball, tossed it carelessly into a corner and continued with his dressing.

When Cardigan stepped onto the ve-

randa the sunlight was glazing, exceptionally hot, indicating another day closer to the scorch season. He sat down to the breakfast Torgan had had prepared for him, and asked the massive Igakuroan what time it was.

"Noon?" Cardigan blinked in answer to Torgan's statement. "My God—half the day shot! The *Venus Maiden* still in mooring?"

Torgan nodded.

As Cardigan ate his breakfast he determined to seek out the missionary and his daughter immediately afterward. He would indicate to them in no uncertain terms that they would have their last chance to leave Igakuro on the *Venus Maiden*. He wondered where they had put up for the night. Probably in the compound Bennett had been ass enough to give them. It was utterly unlikely that the Reverend's indignation had gone as far as refusal to use any of the company property.

THE breakfast served to stabilize Cardigan against the effects of his drinking bout even further, and he rose from the table feeling much better.

"Earthman, earthwoman," Cardigan said to Torgan. "They sleep inside stockade, in compound?"

The big Igakuroan looked puzzled. Cardigan repeated his question, adding that he wished to know in which compound Bennett Boss had put the earth people.

"Far side stockade," Torgan said. "They not there now."

Cardigan frowned.

"Where are they? Are they meddling around in the native huts outside the stockade?"

Torgan shook his head.

"They leave early morning. Dawn not break."

Cardigan was surprised, then suspicious.

"With Bennett Boss?" he asked.

Again Torgan shook his head.

"Before Bennett Boss go. They go inside." Torgan waved his hand to indicate the depths of the jungle and swamp lands.

Cardigan's expression went hard.

"They went into the interior? Did you tell Bennett Boss? That why Bennett Boss leave early?"

Torgan shook his head. "I no tell Bennett Boss. Bennett Boss no ask Torgan."

Cardigan cursed.

"Those damned fools!"

Torgan shook his head.

"I watch them go. I think not wise. I not person to tell them. They alone."

Cardigan stood there a moment, his face angry, his manner indecisive. He began to swear, and continued to do so uninterruptedly for over a minute. Then his lips went tight. He shrugged.

"To hell with them," he said. "It's their worry, not mine. Maybe it's best. It's an easy way to get rid of them. And, at any rate, it's a damned sight better that Bennett didn't find out the damned fools were pulling up stakes."

He turned to Torgan. "Don't say anything about this to Skipper Boss on *Venus Maiden*, understand?"

Torgan nodded slowly, puzzledly. Cardigan Boss was sometimes very hard to understand. But the moods of the earthman were no concern of Torgan's. What Cardigan Boss or Bennett Boss commanded, Torgan did gladly. . . .

ABOARD the *Venus Maiden*, the fat little skipper of the tramp spaceship stared moodily at the breakfast brought into his quarters by the steward. Hutch had a blinding hangover, and his only emotion was remorse.

"I'm an old ass," he told himself ruefully, "to think I can keep up with a

two-fisted young rioter like Cardigan."

He shuddered, and mopped his damp forehead.

The *Venus Maiden's* scrawny spaceradio operator, attired in a worn, incredibly dirty uniform tunic, appeared at the tramp skipper's door, then, saluting sloppily.

"Well, Suran," Hutch demanded irritably, "what is it?"

Suran looked worried, but he took time deciding on his opening line. Finally he blurted:

"I was making *vizascreen* testings," said Spaceradio Operator Suran, "and I picked up the disturbance shadows."

Cap Hutch glared implatiently at Suran.

"What in thunder you talking about? What disturbance shadows?"

"On the screen, sir," said Suran. "The disturbance shadows on the *vizascreen*. I was making tests, beaming the screen out to see what distance I could get from it, and these two shadow disturbances begin to blot in and out on it."

Hutch's irritation formed in sarcasm.

"Two disturbance shadows, eh?" he said. "And what were they, Martian battleships?"

Suran flushed.

"The outlines seemed like they were cruiser-size ships, sir, commercial design. But they could be interspacial patrol craft on the prowl."

Cap Hutch's sarcasm and irritation vanished immediately. He pushed aside the tray from which he had been eating breakfast, rising from the edge of his bunk.

"Are you sure? I mean, are you sure that there could possibly be interspacial patrol craft prowling around?"

The spaceradio officer nodded worriedly.

"That's why I came right to you, sir," he said. "I know we don't want any patrol officers snooping around the cargo of the *Venus Maiden.* That smuggled shipment bound for Juno—the one we picked up in Venus—could get us all into a lot of trouble, sir."

The skipper of the *Venus Maiden* was pale.

"Mebbe I better have a look-see at that *vizascreen,*" he said shakily.

The skipper of the *Venus Maiden* stood beside his spaceradio officer several minutes later, staring at the glowing pink surface of the *vizascreen* in the craft's communications compartment.

In the upper corner of the screen two black shadows blotted on and off the surface with irregular repetition. Cap Hutch was frowning as he stared at the screen, but the expression on his florid face was considerably less worried. At last he turned to Suran and scowled.

"Those can't be patrol craft," he said positively. "They're probably a couple of trading space cruisers."

Suran, the spaceradio officer was vastly relieved at this decision. But he asked:

"What would trading cruisers be doing in this belt, Skipper? I mean, there isn't trade to amount to anything here."

Hutch shrugged.

"Off their courses, mebbe," he said. "I dunno. Could be a hundred reasons. But they don't interest me now. All I wanted to make sure about was that they wasn't patrol craft. That's certain, so what's there to worry about?"

The spaceradio officer scratched his head, grinned, and said he didn't know. Cap Hutch grunted and waddled out of the communications compartment. He was back again in the battle with his hangover. That was all that concerned him for the present.

In this compartment again Hutch groaned and stretched out on his

bunk. He closed his eyes and fought off the demons with the skull hammers. He would have to tell Cardigan about the cruisers after a bit. They could be poachers, nosing around to drop miners on some of the outlying asteroids in the belt. They could be—

The skipper of the *Venus Maiden* fell asleep. . . .

IT WAS late afternoon when Torgan burst excitedly in on Cardigan in the *duralloy* office shack near the space wharfs. The broad-shouldered young man had been busy with engineering problems the better part of the afternoon, and looked up startledly from a disordered mess of papers.

"What's on your mind?" he asked.

"Torgan talk to stevedore, *Venus Maiden*. Stevedore say spaceships near Igakuro. Stevedore say Spaceradio Boss tell Skipper Boss and rest of crew few hours back."

Cardigan's black eyebrows lifted in surprise.

"You sure of that?" he asked.

Torgan nodded.

Cardigan got up and went to the door.

"Come along," he said. "We're going to pay a visit to the *Venus Maiden*."

Cap Hutch was visibly perplexed when he was called up from the rocket room to find young Cardigan and the Igakuroan, Torgan, waiting for him on the deck of the *Venus Maiden*.

"What's the matter Cardigan?" the skipper of the tramp cargo carrier asked uneasily. "Something wrong with the supply consignments I unloaded?"

Cardigan shook his head.

"What about the spaceships your operator picked up on the *vizascreen* earlier today? Torgan heard about it from a winch hand on the wharf."

Cap Hutch snapped his fat fingers in genuine alarm.

"Damn, Cardigan," he said. "I forgot to tell you."

Cardigan stared coldly at him.

"Then tell me now, and make it quick," he said.

Hutch flushed beneath the younger man's stare, and told him in detail what he knew of the matter.

"That was several hours back?" Cardigan asked, when Hutch had concluded.

The skipper of the tramp ship nodded.

"Your spaceradio officer pick them up on the screen since then?"

Hutch shook his head.

"No. He ain't been testing since then."

Cardigan turned in the direction of the communications compartment. Torgan moved along beside him.

"Come on," Cardigan snapped. "We're going to have another look at that screen."

Suran, the operator, was inside when Hutch, Cardigan, and Torgan entered. He looked up in surprise, then connected the *vizascreen* beam apparatus as Cardigan told him what he wanted. In a moment the screen was glowing pink, and Suran was twisting the dial beneath it to set the beam on the same wave at which it had been the other time.

The black outlines of two space cruisers, vastly larger than before, appeared on the screen thirty seconds later. Hutch gasped as he saw the undeniable outlines of armament on the decks of both space craft.

It was Cardigan who broke the startled silence.

"Trading craft, eh, Hutch?" he said, sarcastically.

"My God!" Hutch exclaimed whitely. "Patrol ships!"

Cardigan looked narrowly at the tramp ship's skipper.

"Supposing they are patrol craft, Cap? What's the reason to turn gray over that?" he demanded.

"They didn't look like patrol craft the first time," Hutch was mumbling. "They didn't at all. They didn't at all. It must be some new design they're using. Ohmygawd!"

CARDIGAN had stepped in front of Hutch, and was staring at him in surprise. He repeated his question, and the words seemed to bring Hutch out of his momentary shock. He blinked at Cardigan, then flushed.

"You gotta help me, Cardigan!" he exclaimed. "You gotta help me! Those spaceships are coming in here—there don't seem to be no doubt about it. They'll snoop through the *Venus Maiden,* as sure as hell. They'll find the consignment."

"What consignment?"

"An unlicensed one I picked up at Venus," Hutch said redly. "I—uh—yeah, I smuggled it out. I'm supposed to carry it to Juno."

"What is it?" Cardigan asked.

"Explosive *malium,*" Hutch said, "for making atomic turbine heads. There's a hell of a tariff on the stuff. The persons who gave me the consignment order wanted to skip the tariff charges at both ports. It would save 'em a small fortune. I—uh—hell—I ain't got so much business that I can turn down a fat proposition like that. I accepted the job and packed the stuff under the hull of the *Venus Maiden.* A hundred cases of *malium.* Hell, if the patrol officers snoop and find it there and ask to see my tariff-release papers, I'll catch a fine that'll ruin me forever!"

Cardigan looked disgusted.

"Yes, and perhaps a few months in a Federation prison," he said. "But what in the hell do you think I can do to cover up for you?"

"You can get some of your natives to unload the stuff from the *Venus Maiden,*" Hutch said hoarsely, "and hide it away in one of the shack sections by the swamp lands. The patrol officers won't hang around long. Then we can get the stuff back aboard the *Venus Maiden* and I'll get going."

"That's a marvelous idea, Cap," Cardigan said with heavy sarcasm. "And contains absolutely no risk to me."

Hutch's face fell and he looked miserable.

"What'll I do?" he asked.

"Maybe, if they're patrol officers, they won't snoop," Cardigan suggested. "There's no certainty that they will. It's a fifty-fifty chance, as long as you don't arouse any suspicion. Besides, I'm not thoroughly convinced that those are patrol craft."

"But they're armed, and—" Hutch began.

Cardigan nodded grimly. "I know. I can see the outlines of deck guns as clearly as you can. Nevertheless, there's no certainty that those space cruisers are part of the Interspacial Patrol. Until we know better, I don't think either of us can do much."

Cap Hutch was perplexed.

"But, Cardigan," he protested, "if they ain't part of the patrol, what are—"

Cardigan cut him off. He shrugged as he spoke.

"I'm not good at guessing. But sometimes my hunches aren't so bad."

Hutch went one shade grayer.

"My God!" he exclaimed. "You don't suppose they could be—"

Cardigan cut him off again, speaking to Torgan.

"You'd better call out your boys," he said. "Break out a case of *electra-rifles* and have them ready to stand by."

"Cardigan!" Hutch exclaimed in alarm.

Cardigan shrugged. "There's no sense in getting worked up, and there's no sense in jumping to conclusions," he said. "However, it's a damned good idea to be ready for anything."

CHAPTER VII

IN THE oppressive damply malignant heat of the tropical swamp trails, the Reverend Zender and his daughter Carol had made far less progress in their journey than had originally been planned.

With each succeeding hour after the breaking of dawn, their halts had become more and more frequent. By noon the girl was white-faced and exhausted; her father grimly aware that he had overestimated himself.

The four Igakuroans who had accompanied them as guides and porters sat apart from the earthman and his daughter among the equipment they carried. Their green faces were impassive, their round, red eyes unwinkingly fixed on Zender and his daughter.

"I was a fool to bring you along on this, Carol," the missionary said sickly. "I was a fool to decide to strike out for the villages on the other side of the swamps in the first place. We had only natives' word for the distance, and only their word for the existence of the village beyond there. There is nothing for us to do but swallow our pride and turn back," he concluded bitterly.

"How long has it been since we left the stockade?" the girl asked.

"Perhaps eight hours," said her father. "Perhaps a little less. It is impossible to learn from the natives how much longer the journey is. They don't seem to be able to understand what I wish to know."

"It might not be much farther," the girl said weakly. "It might be less than our return would be."

The missionary ran his big-boned hand through his hair.

"It might be," he admitted. "But if it isn't—" He let the sentence trail off.

The Reverend Zender rose. He walked over to the four impassive porters. They interpreted his action to mean a continuation of the journey, and leaped to their feet. The tall, somber-faced missionary wiped the sweat from his eyes, and shook his head. He gestured for them to sit down again. Then he pointed back in the direction from which they had come. Painfully, then, he used his knowledge of the native dialect as best he could. It seemed to him, after some three minutes of this, that they finally understood him.

Zender went back to his daughter.

"I think I made it clear that we are to rest a little longer, then start back," he said.

The girl looked at her father, and there were tears in her eyes. He seemed utterly defeated, sickly exhausted. . . .

ON BOARD the foremost of the two black-sheened space cruisers, Malveau stood on the glassicade enclosed bridge deck. Beside him was Uska, the Junovian.

"The tramp, *Venus Maiden* lies at the far end of the wharf," Malveau was saying, "Obviously the fool of a skipper had some reason for delaying his departure."

"I wonder if it iss ssome ssort of a trap," Uska said.

Malveau looked at him sharply.

"Of course not," he snapped.

"Our sspaceradio operator reportss that there iss no activity on the wharfss or otherwisse," said Uska troubledly.

Malveau put scorn in his question.

"Are you afraid?"

Uska stared coldly at Malveau with his single eye. His features twisted

into a grimace of anger.

"You ssay that to me?" he demanded.

"I had reason to ask," Malveau countered. "Your remarks indicated unusual concern over possible danger."

Satan came onto the bridge then, his huge body shrugging through the bulkhead entrance with little room to spare. He spoke to Uska.

"You'd better get below with the first crew, my friend," he smiled. "The mooring we make at the wharf is going to be precisely timed. We must spill from the side hatches onto the wharf with speed. The speed of our attack will be the essence of surprise."

Uska turned away, then paused.

"You have taken into consideration the tramp sspacesship lying at the far end of the wharf?" he asked.

Satan nodded.

"Naturally. It is an unexpected factor, but not troublesome. Our second cruiser will draw alongside the tramp and blast it to fragments with atomic cannon fire. From such close range, the tramp ship will be disposed of in several minutes."

Uska nodded, relieved.

"That iss good," he said. "It troubled me."

Malveau and Satan watched the ugly, one-eyed Junovian leave the bridge. Then Satan laughed.

"The fool evidently is losing all confidence in my leadership," he said. "It troubled him—hah! More than that will trouble him very shortly."

"You have arranged for his disposal?" Malveau asked.

Satan nodded. "One of the men in his landing party is to dispose of him. Atomic pistol, in the back. Simple."

Malveau smiled thinly at this, and uneasiness returned to his eyes. Satan detected it.

"Come now, does the idea bother you?" he asked.

The thin, moustached Malveau shook his handsome head quickly—too quickly. He laughed, and the laugh was hollow.

"I was just thinking of the ease with which you win your way," he said.

"Yes," the brutish giant agreed amiably. "Yes. I plan everything most carefully." He suddenly had an atomic pistol in his hand. It was centered on Malveau's chest.

The expression on Malveau's face was one of sudden frozen horror. He opened his mouth to scream, but only a choked wheeze came to his trembling lips.

Satan's atomic pistol crackled in the next instant, and a searing bolt of flame crumpled Malveau's tall, thin figure like a scorched doll.

The massive brigand stared down at the hideously burned corpse of his lieutenant. He smiled, and replaced the weapon in its holster. He stepped over to the communications screen in the corner of the bridge, snapped it on.

Briefly, Satan asked the navigator at the forward controls of the cruiser how long it would be before Igakuro's wharfside was reached. He was told two hours. He snapped off the screen, stepped around Malveau's charred body, and left the bridge . . .

CARDIGAN had issued *electra-rifles* to the skipper and members of the crew of the *Venus Maiden*, ordered them from the ship, and placed them along the walls of the compound-stockade.

Torgan's native squadron, also armed with electra-rifles, Cardigan had placed in the swamp fringes several hundred yards from the wharfside, after stationing a two man crew from their numbers at each of the two atomic cannon concealed in the shacks on either side of the space mooring wharf. Then Car-

digan joined Torgan's riflemen in the swamp fringes to wait.

The waiting had been hellish, until finally, after an hour, the faintly discernible dots in the strata had appeared. An hour more and these dots were larger. But twilight was falling, and Cardigan sensed that the approaching cruisers were moving in now at half-speed in order to make certain of arriving in darkness.

Cardigan no longer considered the possibility that the approaching space cruisers were patrol craft. And now the waiting was charged with a new excitement, as Cardigan sent a native runner into the swampland with a message for Bennett.

Another hour passed, and Igakuro was blanketed in blackness. The throbbing of the rocket motors of the approaching cruisers was now faintly audible, and for another ten minutes grew increasingly more distinct. Then the sound was cut off, and Cardigan sensed that the cruisers were moving in with atomic mooring motors.

Hutch arrived from the stockade compound. He came stealthily through the swamp brush to Cardigan's side.

"The men along the stockade walls are getting out of hand," he whispered huskily. "What in the hell can I tell 'em?"

"Tell them to carry out orders," Cardigan said quietly, "unless they want to die quickly. You realize, of course, that those aren't patrol craft coming in?" he added sarcastically.

Hutch nodded, mopping his brow with a crumpled handkerchief.

"Hell yes, and so do the men. But what're we expected to do?"

"Hold fire until we break from this swamp fringe and make for the stockade. Then open up to cover our retreat. For Godsake tell them to keep their fire high and well over our heads. When we get to the stockade, I'll take over."

The skipper of the tramp ship left, and Cardigan went forward to have a hurried consultation with each of the gun crews on either side of the mooring wharf. He instructed them to hold fire until the cruisers were actually moored. Then he returned to Torgan's riflemen at the swamp edge.

It happened with incredible swiftness just five minutes later.

Torgan saw the black hulls of the space cruisers before Cardigan did. He grabbed Cardigan's arm excitedly, pointing wordlessly. And then Cardigan saw them.

ONE of the cruisers was leading the other—it seemed for a moment. Then, apruptly, the rear cruiser was swinging up parallel to the *Venus Maiden* into a range less than twenty yards off, while the other slid silently to motor mooring at the other end of the wharfside.

The gun crew at the atomic cannon concealed in the shack to the left of the wharf opened fire, the flash of flame spitting toward the cruiser at mooring.

There was a sudden wild whoop from a dozen throats, and men were tumbling from the side hatches of the moored cruiser to the wharf. A blasting bolt of crimson from the gun deck of that cruiser answered the atomic cannon in the right shack an instant later, and flame leaped high with explosive brilliance as the right shack burst into fragments.

Cardigan gave the order to Torgan, and the native guards opened fire at the running figures on the dock, using the momentary glare from the demolished shack to sight their human targets.

Electra-rifles snapped back their answer, and the cannon on the deck of

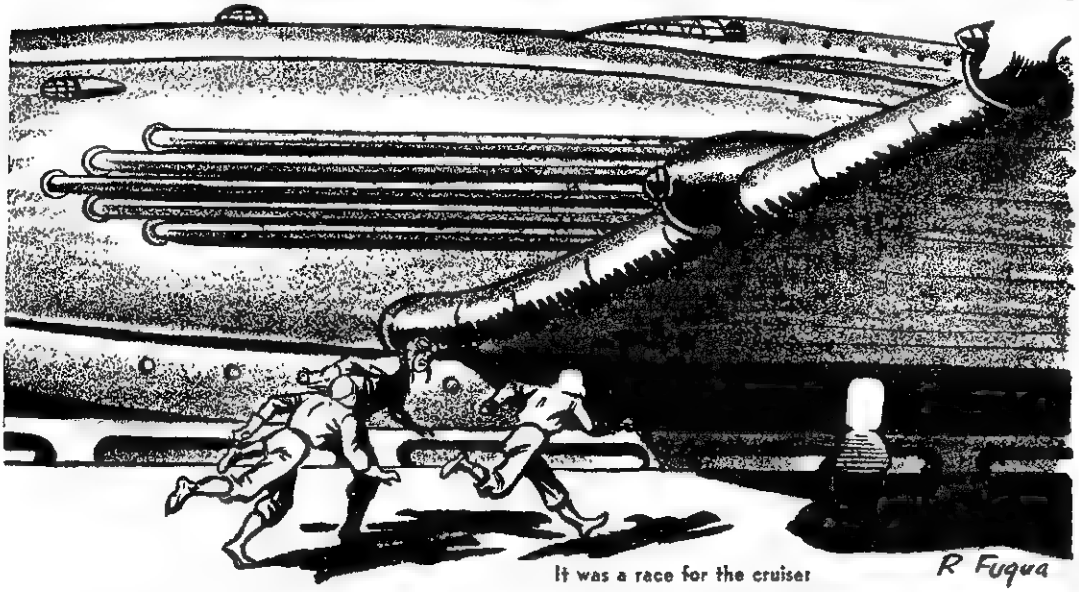
the motor moored cruiser sent a blast of crimson flame flashing into the stockade-compound. The explosion there was terrific.

Cardigan was cursing, demanding profanely to know why the gun crew in the left shack hadn't opened fire. And then he saw the fleeing figures in the darkness—figures dashing from the shack toward the comparative safety of the swamp brush. His face went rigid with rage at the realization that the native gun crew had deserted the atomic cannon in terror without firing a shot.

Cardigan put his own electra-rifle to his shoulder, aimed carefully, and fired.

The foremost of the panic stricken deserters flopped forward several yards from the swamp fringe. Cardigan fired again, and the second native toppled over dead.

Cardigan turned back to the battle, and saw that several of the attackers already lay dead on the wharf from the accurate fire of Torgan's Igakuroan crew. The others had taken shelter behind bales, packing cases, and pilings, and were keeping up a steady answering fire at Cardigan's position.



It was a race for the cruiser

The second cruiser, the one which had run up parallel to the *Venus Maiden,* opened fire then. And Cardigan saw its purpose instantly as the first shot from that craft smashed explosively into the tramp ship's stern. The *Venus Maiden* was to be decimated, and thus block any possible retreat in her.

The cruiser stood off and sent a second atomic cannon blast into the side of the *Venus Maiden* slightly forward of midships. And in the next instant the planet rocked to the incredible explosion that shook the wharfside and bathed the entire landscape in a sheet of flame.

Cardigan was thrown forward on his face through the terrific concussion of the blast. He picked himself up, ears ringing, nose bleeding, while the ground still trembled beneath him.

The wharf near where the *Venus Maiden* had been moored was nothing but a twisted scar of molten *duralloy.* The tramp ship and the cruiser which had fired on her from a range of twenty yards were nowhere to be seen.

And suddenly Cardigan was laughing almost hysterically in the realization of what had happened. The brig and cruiser had fired into the hold compartments where Hutch's smuggled cases of highly explosive *malium* had been stored. The resultant blast had utterly destroyed both the *Venus Maiden* and her attacker.

CARDIGAN looked for the first cruiser which had moored at the other end of the wharf, wildly hoping that it had suffered some damage from the blast, when the deck gun of that craft opened fire again with furious rapidity, sending bolt upon bolt of flame blasting into the stockade-compound.

The thunderous explosions behind

him told him of the devasting bombardment Hutch and his crew were receiving. And the futile hysteria of answering *electra-rifle* fire told him of the panic of its defenders. Cardigan turned to Torgan and shouted the order for withdrawal to the stockade.

There were but half a dozen native riflemen left of Torgan's original squad of twenty, even though only five lay dead in the swamp bushes. Cardigan realized that the others had fled in the confusion of the battle, and he cursed them fultiley as he and Torgan rallied the remnants of the band for the retreat to the compounds.

The individual fire from the attackers on the wharf had ceased completely, but the cruiser's deck gun continued to blast explosive blots of flame unerringly into the stockade.

Cardigan and Torgan had nursed the half dozen native riflemen through several hundred yards of swamp brush and were still a hundred yards from the compounds when it became apparent that their objective was no longer suitable for either shelter or defense.

The stockade-compound was an inferno of flame, torchlighting the terrain around it for more than a hundred yards. All sign of resistance from it had ceased, and Cardigan was sickly certain that Hutch and the dozen or more members of his crew had perished in the brutal bombardment.

Cardigan turned wordlessly to the massive Torgan. The huge Igakuroan was staring dumbly at the blazing ruins of the stockade, the flames from which were already spreading to the native village just outside it.

The bombardment suddenly ceased and, save for wild shouting from the attackers on the wharfside, the only sound was the crackling of the blazing settlement.

Torgan's mouth was taut, his face rigid. He tore his eyes from the blazing ruins and looked at Cardigan.

"They be here soon," the huge native said slowly. "We move hell out of here quick." He pointed into the swampy jungles.

Cardigan nodded, and turned away to follow Torgan into the thick, enveloping blackness of the tangled swampland. The rest of the native riflemen had deserted, but neither Cardigan nor his faithful native companion gave any sign of knowing it. Behind them the yells of the triumphant brigands grew faint, swallowed in the oppressive curtain of jungle blackness.

Soon there was no sound except that of their own legs slogging knee-deep through the treacherous marshes of the swamp wastes. . . .

CHAPTER VIII

BENNETT had started back immediately when the message carried by the frightened native runner arrived. There had been no time for him to rally any of the natives in the mines, and the effort would have been useless since there were no weapons in the *vardium* fields with which to arm them. He was aware, also, that the native miners, on hearing the tale of impending attack from the messenger who had brought Cardigan's note to him, would undoubtedly take to the jungle for safety and hiding until the trouble was over. But trying to prevent such a reaction, he knew, would also be futile.

There was nothing for him to do, Bennett knew, save continue toward the compound-stockade alone and as swiftly as possible. En route, he could at least prepare plans to cover several possibilities he might encounter when he got there.

Bennett had left all heavy equip-

ment, save his *electra-rifle* and atomic pistols, behind him when he'd started back, and was consequently able to make excellent time through the tangled underbrush of the short-cut he had selected.

He ran with a loping, easy gait that ate up distance, and slowed to a walk each quarter of an hour to refurbish his strength. He had proceeded this way less than two hours when the sounds of battle finally came to his ears. As he struggled onward, he was soon able to recognize the explosive shriek of atomic cannonading, and tell, further, that it was not the sound made by the obsolete atomic guns which he and Cardigan had mounted for protection on the wharfside.

The sickening explanation for this was instantly apparent to Bennett. Their own atomic cannon were either unmanned or put out of action. The other atomic cannon was that of the raiding party. The situation was consequently highly unfavorable.

Bennett's loose stride was jerky, stumbling, now, and his lean young face blackened with grime and streaming sweat. Each breath was as a burning sob in his lungs; and a creeper vine sent him spilling forward to the thick slime of the marshland a few moments later.

As Bennett struggled to his feet and started forward again, the stabbing fire of pain in his left ankle brought an involuntary groan from his lips. He hobbled to a stop, forcing himself to pause long enough to wrest the thick boot from his foot.

A glance at the rapidly swelling bruise below his ankle told him, more than the pain itself, that the sprain was particularly bad. He gritted his teeth, and forced his heavy boot back over the foot, the pain of the effort lancing brutally through his weary body.

Bennett made two efforts to continue forward. The first sent him sprawling to the slime again the moment he threw his weight upon his bad ankle.

He picked himself up, sobbing, unslung his *electra-rifle* and tried to use it as a crutch. The butt of the weapon sank suckingly into the slime, slipping swiftly forward and pitching Bennett over on his side.

IT WAS then that the thundering reverberation of the blast from the wharfside shook the ground beneath Bennett, stunning him momentarily, deafening his eardrums, and shaking the planet with earthquaking violence.

Dazedly, Bennett lifted himself to one elbow, shaking his head to clear his stunned senses of sight and hearing. He inched forward until his groping hand found his *electra-rifle*, then, using the weapon as a staff, he pulled himself to a sitting position, and tried again to rise.

The effort this time was more successful, though it drenched his already soaked body with a cold wave of sweat. He stood there, teetering against the *electra-rifle's* support, gathering strength enough to continue.

Then he started forward again, slowly, painfully, hobbling in a lurching sort of see-saw.

Ten yards further Bennett stumbled and pitched forward to the slime again. He lay motionless for perhaps a minute, then began the exhausting ritual of rising once more. The atomic cannonading from the wharfside was still uninterrupted, the sporadic *electra-rifle* fire blending dimly into the background.

Voices were faint in Bennett's ears, now. Voices blurring into the background of battle. He struggled slowly forward again, and five yards further on, fell once more.

Bennett heard the voices more

clearly, now, and the crashing of bodies through the underbrush. He raised his head, turning himself on his side as he did so, sliding his elbow beneath his body to form a bridge for the *electra-rifle* which he slowly brought to a firing position. The angry noises of battle continued, as did the crashing sounds in the underbrush and the approach of voices.

Bennett clenched his teeth, blinking away the sweat and pain that blurred his vision, peering grimly along the sights of his *electra-rifle* as he trained it on the spot in the underbrush ahead from which the sound of approaching voices was loudest.

He waited, the sweat rolling over his face in cold waves. Waited, as he tried to concentrate his dazed and weary mind upon the sound of the voices against the confusing sound pattern of the battle.

Bennett saw the underbrush move, then. Move directly before the sights of his weapon. His thumb went taut against the firing button, the pressure a scant hair-weight from that required to send an *electra-bolt* flashing directly into the moving brush.

He was almost able to discern the shadowy bulk of the person crashing through the brush toward him, and grimly decided to hold his fire only long enough for a split-second identification of the approaching bush-prowler.

If it were Cardigan, or some loyal Igakuroan, or even old Hutch, such split-second recognition would be simple. But should it be otherwise, Bennett determined to shoot first and identify at leisure.

Now the voices had stopped abruptly.

The brush was parting. . . .

THE firing had ceased by his order, and now Satan stood on the shattered wharfside of Igakuro, grimly surveying the cost of his raid.

The explosion of the other cruiser had been a catastrophic shock to the massive earth renegade. It had been an integral factor in the completion of his sacking of the planet. But he had pushed the disaster temporarily from his mind, inasmuch as there had been the attack to carry out.

Uska had been slain as Satan had ordered, by an atomic pistol blast from behind as the lieutenant led the first wave of the raiders onto the docks. The dark, lean, effeminate earthman had been eliminated by Satan himself. Uska had been dispatched by Jekka. Each of these slayings according to plans conceived before the disaster to the second cruiser occurred.

Satan's renegade navigator-skipper had been one of those who perished in the explosion of the second craft. And Satan had never intended to dispatch that necessary lieutenant to his plans.

Polo had gathered the brigands together on the shattered wharf, once the firing had ceased by the massive leader's order. And there were now scarcely more than a dozen of them left.

Satan moved along the space mooring dock wordlessly, identifying those who had been slain by the *electra-rifles* of Igakuro's futile defenders. Then he returned to the Junovian, Polo, and ordered him to place two men on watch aboard the remaining cruiser, sending the rest forward to occupy the ruins of the compound-stockade.

"We will remain until dawn," Satan told his stocky lieutenant. "And then we shall hunt the *var-dust* caches underground. The loss of our sister ship makes it impossible to plan on waiting here for any further supply of the alloy to be wrested from the mines. We have but one vessel on which to carry what we can seize. Our plans have conse-

quently been considerably altered."

Polo nodded, turned and bellowed instructions to the dozen or so brigands who waited patiently on the dock. Two returned to take watch aboard the black-sheened cruiser, and the remainder moved slowly for the ruins of the compound-stockade.

"What of continued resistance?" Polo demanded. "Do you think we will find any more?"

"I can tell you that," Satan said, "when we count corpses in the compound-stockade and along the underbrush fringe from which their principle *electra-rifle* fire came."

Satan shrugged, his dark features glowering.

"Until then," he added, "we must wait." His voice was ragged, angry. He started out for the ruins of the stockade compound, his thug lieutenant following along behind him.

It was fully a dozen minutes later when Polo and Satan finished their inspection of the dead in the stockade-compound.

"There are enough to fully account for the crew aboard the space tramper," Polo said quietly. "We can be certain they are all eliminated."

Satan shrugged his massive shoulders, staring down at a body crumpled beside his feet.

"Perhaps," he said. "But there was none among these dead who could have been Bennett or Cardigan."

"We have yet to inspect the underbrush fringe from which the *electra-rifle* fire came," Polo put in.

Satan glowered, prodding the body with his foot. There was a faint moan, and the massive brigand leader's eyes flashed to meet Polo's then back to the body.

"This one survived, it seems," Satan said.

The faint moan was repeated.

Satan pulled an atomic pistol from his hip-holster. He turned the body with his foot, rolling it over face upward.

The badly burned features that looked sightlessly up at Satan and his lieutenant were those of Cap Hutch. The burned, puffed lips parted and another faint moan escaped them.

Satan trained his atomic pistol on the wounded space tramp skipper's head. He fired once, unerringly, and what was left of Hutch stirred and groaned no longer.

Satan turned to Polo.

"Come," he snapped irritably, shoving the weapon back into its holster. "We must search for the bodies of Cardigan and Bennett."

THE Reverend Zender and his daughter were several hours from their return to the compound-stockade when the noises of the sudden battle reached their ears.

The missionary had been at the fore of their tiny safari, directly behind the lead guide. For part of the journey he had carried his exhausted daughter in his arms, and for much of it she had been able to walk along the slimy mire of the trail beside him with just the assistance of his arm.

The front Igakuroan guide heard the gunfire before either the missionary or his daughter did. His abrupt halt and frightened face, therefore, were puzzling to Zender and his daughter, Carol.

It was only when the native bolted, dashing back along the line of porters and screaming wild gibberish at them, that the opening cannonading reached the ears of the two earth people.

And before either of them could adjust themselves to the swift purpose of their guides, the Igakuroans had fled into the thick concealment of the underbrush.

That was the last that Reverend Zender or his daughter Carol saw of their guides. Their equipment was dumped crazily into the short brush and thick slime of the trail, and the Igakuroans had vanished but seconds later.

The gaunt, somber-visaged missionary stared wordlessly, grimly, in the direction of the battle sounds, his daughter holding tightly to his arm.

Finally he turned to her.

His face was bleak, washed of all emotion save the pity that shone from his eyes for the girl.

"Carol," he began. Suddenly he choked, impulsively placing his big, gnarled hands on her shoulders. "You know what this—this means?"

Carol made a brave attempt to hide her fear. Her white teeth bit into her full underlip and she smiled tremulously, shaking her head.

"It is a brigand raid of some sort," the missionary said quietly. "There could be no other explanation. It is not a native revolt, otherwise our Igakuroan guides would have turned on us instead of fleeing."

"What are we to do?" the girl asked.

The tall, gaunt Zender hesitated for just a moment.

"You are not afraid, Carol?"

"No," the girl answered.

He took his hands from her shoulders.

"Then there is only one thing for us to do," he declared quietly. "We must continue with all haste to the stockade-compound. Cardigan and Bennett will need whatever assistance we can give them."

"Yes, Father," Carol Zender said. "It is the only thing for us to do."

The tall missionary turned, surveying the trail ahead. He spoke as if to himself, though his words were addressed to the girl.

"If there were some place of safety for you," he said huskily, "I would leave you there. However, we do not know if the brigands have landed at other points on the planet, and it is more certain to find safety for you inside the stockade."

"But without the Igakuroan guides," the girl began, "we—"

Her father cut her off.

"I realize," he admitted, "that we will have difficulty in finding our way through the trail tangles back to the compound-stockade. H o w e v e r, we must attempt it. I shall do my best."

The girl nodded, and her father slipped his arm about her slim shoulders, giving her needed support as they set off slowly along the swampy marshline of the trail. . . .

CHAPTER IX

CARDIGAN and the huge Igakuroan, Torgan, reached Vardium Shaft Eighty shortly before dawn broke on the tiny planet. The short, wide-shouldered young earthman and the massive native were each comparatively fresh, although the short-cut course through some of the most treacherous swampland on the planet had been especially arduous.

Cardigan glanced around the deserted drill shacks, the empty shaft workings, and looked bitterly at Torgan.

"They all got the hell away in a hurry," he observed. "I don't imagine an Igakuroan skull will poke out of the swamp jungle brush for another year."

Torgan shuffled his big, naked feet uncomfortably and looked away. The bitterness left Cardigan's mouth, and he touched the native's hugely muscled forearm apologetically.

"It's all right. I don't suppose I can blame them. It isn't their fight. Your sticking by makes up for as much as y o u r comrades-under-the-green-skin could have done."

"Bennett Boss come back here?" Torgan asked.

Cardigan nodded, frowning.

"I hope to hell he does. He should have sense enough to realize what's happened to the resistance we offered on the wharfside and from the stockade, once he gets within reconnaissance range of things. The message I sent him should have reached him shortly before the fight opened up. His departure from here would bring him almost half the distance back to the stockade before the mess stopped. That would give him time, however, to be here waiting to rendezvous with us by now."

"Bennett Boss maybe not turn back for here," Torgan suggested.

Cardigan shrugged. "Perhaps not. But he'd realize, of course, that any brigand raid would be directed at our *var-dust* supply, and inasmuch as the *var-dust* is cached underground only a few hundred yards off the trail, here, he'd know that any retreat we'd make would be to protect it."

"Bennett Boss see maybe all dead. Think maybe you dead. Maybe take cover other side planet," Torgan said.

Cardigan said nothing to this. He walked over to the shaft edge and sat down wearily, unslinging his *electra-rifle* and dropping it to his lap.

Torgan turned and went off down the trail a few yards. He stood there motionless, facing the direction of the stockades. Cardigan watched the massive native expressionlessly. After several minutes, Torgan turned and came back to Cardigan.

"No follow us. No person on trail," he said.

Cardigan nodded in satisfaction.

"That's some consolation. They probably don't realize as yet that any one came out from under their attack alive. They'll probably put a check on their start for the *var-dust* cache until they can count heads and reorganize. The blow-up of the extra cruiser was obviously not in their plans. I figure they'll get under way from the stockade —or what's left of it—sometime around dawn."

TORGAN nodded solemnly at what he digested of Cardigan's summation.

"Then what we do, Cardigan Boss?" he asked.

Cardigan looked up sharply at the huge native. A flicker of a grin touched his mouth.

"You can ask the damnedest questions, Torgan," he said.

Torgan nodded agreeably to the statement.

"Maybe Cardigan Boss think I take post down trail, keep watch," the Igakuroan said.

"A good idea," Cardigan agreed. "Mile, half mile, down main trail. Keep look-out."

Torgan nodded and turned away, moving swiftly down the trail in the direction of the stockade. His huge green-skinned body was lost from sight in the thick tangle of the verdant undergrowth a few minutes later.

Cardigan rose, carrying his *electra-rifle* under his arm, and began to pace nervously back and forth before the deserted mine shaft.

"Damn him," he muttered anxiously. "What's happened to him?"

After five more minutes of this irritable panthering back and forth, Cardigan returned to the shaft side and sat down again. He remained in this position for several minutes, then rose abruptly.

"Dammit!" he snapped explosively. "This waiting has gone on too long. Something's happened to Pete! Maybe those devils have done him in!"

Cardigan slung his *electra-rifle* over

his shoulder and began a swift, swinging trot along the trail in the direction Torgan had taken. A moment later and he was beating aside the overhanging tangle of swamp vegetation that marked the entrance of the tunnel-like trail. Five minutes after that, still swinging along at his swift, loose pace, he came upon Torgan.

The huge native stepped out from the concealment of brush beside the trail.

"Something wrong, Cardigan Boss?"

Cardigan said: "Bennett Boss. Too long overdue. Must find, Torgan. What short cut would he take in hell of a hurry?"

Torgan thought a moment.

"We go back shaft," he said.

Cardigan nodded, and let the huge Igakuroan lead him as they started back to the shaft. When they were back in the drill clearings and at the shaft again, Torgan surveyed the scene.

Cardigan waited patiently, while the swamp-wise Igakuroan searched for some sign of the short-cut on which Bennett had started. Several minutes passed.

At last, stopping before a small gap-tunnel leading into the underbrush at the edge of the clearing, Torgan turned to Cardigan.

"Think maybe Bennett Boss start here," the massive native said.

"Let's get going," Cardigan said.

Torgan grunted something in his own tongue and shouldered into the inky opening at the edge of the clearing. The saffron of Igakuroan dawn was slanting into the sky over the clearing as the two entered the thick tangle of the swamp jungle again. In a moment the dawn was replaced by the blackness of the *astera-tropical* jungle around them.

THROUGH the thick slime of the marshland underfooting, Cardigan followed the guidance of the massive Igakuroan doggedly. The massive native moved with the easy certainty of one born to swamp lore, seemingly able to pierce the blackness with a vision that was beacon-like.

Now and again Torgan stopped, inspecting a print, or a tell-tale fragment of thread on a thorn-crusted creeper vine. Cardigan grimly marveled at the native's certainty in inspecting each of these signs, but was breathlessly relieved every time another tell-tale mark further along gave assurance that the last clue had not been misread.

Several times Cardigan slipped forward in the stinking slime of a marsh, only to climb cursing to his feet, while the massive native waited patiently. Then they would be off again, Torgan leading the way with a swift, tireless stride that knew no uncertainty.

Only after an hour passed did Torgan halt, insisting that Cardigan spend several minutes regaining his strength and bringing the wind back to his aching lungs. Cardigan cursed the native, then, insisting that he was still able to continue. But after the short rest, he realized the soundness of his guide's decision when they were able to proceed again with considerably more speed.

Half an hour further on, Torgan halted, turning to Cardigan, pointing to an indistinct smear across the gray-black slime of the marshland mud.

Cardigan looked questioningly at Torgan.

"What does it mean?"

"Bennett Boss, not far ahead," Torgan said.

"Thank God!" Cardigan gasped.

The undergrowth was thicker, the tangler and creeper vines much more treacherous as Cardigan started on behind the hulking frame of the huge Igakuroan.

Torgan used his huge body and his *electra-rifle* as both wedge and scythe

to clear the way for Cardigan following him. Cardigan was cursing jubilantly, now, in a relief that was almost hysterical. Torgan accompanied this with pleased grunts and gabblings of pride.

Less than three minutes later Torgan slashed through the brush and out into a small clearing, Cardigan directly on his heels.

It was Torgan who grunted:

"Bennett Boss!"

And then Cardigan saw his partner. Bennett was lying at the other edge of the tiny clearing, propped up on one elbow, *electra-rifle* grasped tightly in white-knuckled hands, pointed unwaveringly at them!

"Pete!" Cardigan cried out.

The *electra-rifle* wavered, then the barrel of the weapon nosed forward and the rifle slid from Bennett's hands.

"You dope!" Bennett gasped, a sickly grin forcing the corners of his mouth up momentarily. Then, face ashen, his head dropped forward into the black-gray ooze of marsh slime.

Torgan was across the tiny clearing in an instant, Cardigin several paces behind. The huge Igakuroan bent over and lifted the lean, wiry body of Cardigan's pardner into his arms in a gentle effortless gesture. He turned to face Cardigan.

"We go back?"

Cardigan nodded.

"Right, old blood-hound!" he grinned. He stepped over and picked up the *electra-rifle* that had fallen from Bennett's grasp when he'd fainted. He slung this over his shoulder beside his own and followed Torgan back across the tiny clearing the way they had come. Torgan paused at the edge of the clearing.

"Quick way Bennett Boss pick not damn quick enough for Torgan," he said.

"You know a shorter way?" Cardigan demanded.

Torgan nodded. "Shorter. Harder. Take?"

"Take," said Cardigan . . .

AS the Reverend Zender and his daughter, Carol, made their way laboriously back through the oppressive blackness of the swamp jungles, the sounds of conflict came increasingly, ominously, louder to their ears.

Zender had used these sounds of battle to guide their progress, however, and through them managed to regain bearings when the swamp marsh tangle seemed to thwart them utterly.

The occasions on which the two were forced to pause for rest were numerous; for the girl, though grimly determined not to falter, found the strain of the battle against the *astera-tropical* jungle increasingly more exhausting.

In spite of this, however, their progress was swift, and they soon found themselves at a trail fork which was at last recognizable to the tall, gaunt missionary.

Almost simultaneous with their discovery of this familiar trail fork, the sounds of battle ceased abruptly.

The missionary had demanded that his daughter rest a few moments once more, and they were seated at the side of the fork when the eerie strangeness of the sudden battle lull became at once apparent to them both.

The sharp glance of alarm that Carol gave her father was anxiously questioning.

"They've stopped," she said. "What does that mea—"

The Reverend Zender answered his daughter's question before it was completed.

"It might perhaps signify a lull of but a few moments," he said gravely. "Or it might mean that the battle is

done." His expression was wooden. "We should learn which it is within a few more minutes," he added.

The girl nodded wordlessly, her eyes filled with sudden fear.

The minutes passed, while the ominous silence held. Zender wiped the perspiration from his gaunt face, glancing at his daughter. He rose, then, abruptly.

"I think it best that we continue on, Carol," he said. "The battle, I am almost certain, has come to an end." He ran a big hand through the matted tangle of his lank dark hair, and his wide, thin-lipped mouth went tight in determination.

The girl rose instantly.

"If the fight is over," she began, "do you suppose that—"

Her father cut off her question.

"It is impossible to tell who has been the victor, Carol. We will have no way of knowing until we arrive at the compound-stockade. Then—" He broke off.

"If the others have won?" the girl asked.

"We must do what we can," Zender answered. "But until we arrive, there is no certainty of that."

"Father," Carol said swiftly, "you don't intend to—" She was unable to finish the question.

"I must do all that I can," the missionary answered simply.

"But you are unarmed!" the girl protested. "If the brigands have won the stockade, and the wharf is in their hands, there is nothing you could do, Father. If Bennett and Cardigan and their native guards were unable to beat off the attack, surely it is madness for you to think that you could succeed where they have failed!"

"I said merely that I will do what I am able," the missionary declared. "And I repeat, we cannot tell what lies ahead until we come to it."

They started off along the trail again, and the silence was more ominous than the noise of battle had been before.

It was scarcely half an hour later when they heard the first of the brigand voices, and caught the first flickerings of flame from the stockade dimly ahead in the blackness.

Save for a short, swift tension in his arm around Carol's shoulder, Zender did not betray an emotional response to this. They continued onward for another quarter of a mile, at which point the missionary wordlessly guided his daughter into the thick fringes of the jungle trail.

"Our concealment will be more simple, should any of them be coming in this direction," he explained. . . .

IT was considerably later when the missionary and his daughter at last arrived at the edge of the jungle clearing in which lay the ruined huts of what had been the Igakuroan village just beyond the compound stockade.

The scene before them was one of charred devastation, utter destruction. Not a hut in the village had been spared by what had obviously been swiftly speeding flame.

The girl remained in the clearing fringes, while Zender went stealthily forward to investigate. When he returned some fifteen minutes later his mouth was a tight, hard line of cold anger.

"The natives managed to flee to the jungles," he reported. "There was no trace of any of their—their bodies in the ashes of the village ruins. The stockade beyond, however," and he paused, his great fists working in rage, "is a scene of carnage. All of the crew from the *Venus Maiden* seem to have been slaughtered while defending the stockade walls. The brigands are in what's left of the compound buildings.

They've evidently posted several men aboard their raiding cruiser off the wharf."

The girl listened to her father with white-faced horror, her lips compressed into a thin line of anger. As he paused, she interrupted him quietly.

"What do you imagine they plan next, Father?"

"The *var-dust* deposits cached away in Cardigan and Bennett's underground vaults are undoubtedly what they're after," he said. "I was able to overhear two sentries mentioning the underground vault. The plan is to start for there at dawn."

"And where is the vault located?"

"In the vicinity of Shaft Eighty," the missionary said. "Young Bennett mentioned it to me the evening of our arrival."

There was a silence. Carol Zender finally broke it.

"And what do you plan to do, Father?"

"I'm not sure, yet," he declared. "Just now there is nothing to do. You must rest. If we withdraw a little more into the jungle we will be safe temporarily. I'll stand guard while you sleep, and I shall be able to rest somewhat myself."

The girl rose, her face suddenly calm.

"Very well, Father," she said. . . .

THE missionary woke his daughter shortly before the Igakuroan dawn broke. As the girl sleepily opened her eyes, she saw the *electra-rifle* which her father carried in the crook of his arm, and her face was suddenly startledly anxious.

"I found this beside the body of an Igakuroan guard," Zender explained. "Evidently the brigands did not get around to looting all the dead."

It was then that Carol became aware of the voices in the distance. She turned her head sharply in the direction from which they came—the direction of the stockade-compound and the desolated native village.

"They are awake and preparing to start for Shaft Eighty," the missionary said. "I am not certain but I believe they number ten at the most, not including those two left aboard their space cruiser. We will wait until they are on their way."

"Then?" the girl asked.

"Then to the cruiser," Zender said. "I don't believe the guards left aboard will remain awake once their comrades start into the jungle. From a hiding place near the wharfside I heard them bemoaning the fact that they were forced to go sleepless while their companions rested."

The voices coming from the stockade-compound suddenly became less audible, dwindling slowly until they ceased entirely.

The missionary and his daughter exchanged glances.

"They are getting under way," Zender declared. "Wait here."

The girl shook her head.

"No, Father. I'm going with you. There are two aboard that cruiser."

The Reverend Zender stared wordlessly at the girl a moment, then answered. "I am not going to the cruiser until I am certain the others are on their way," he said. "Please remain here, Carol, until I return."

The girl started to object, then bit her underlip and said nothing.

"Will you promise to remain here?" her father asked.

Silently, the girl nodded.

The missionary stepped forward and touched the girl's shoulder briefly, wordlessly, his eyes speaking his emotions.

The silence held for several moments. Then he said:

"Good girl."

He turned away then, and strode into the thick green tangle of the undergrowth. The girl watched her father disappear into the verdant jungle wall, then waited until the sound of his body crashing through the brush was dim in the distance.

Then she set out after him . . .

THE missionary watched the brigands pass along the trail a scant fifty yards from where he crouched in the concealment of the jungle brush. He held his *electra-rifle* in his hands, his knuckles going white as his fingers tightened on the stock.

When the last of the small procession had passed, Zender stepped out onto the trail and started back in the direction from which they had come. It was many minutes later when the gaunt, grim figure of the missionary stepped back into the concealment of the green swamp jungles, striking through the brush to bring himself to the edge of the clearing near the space mooring wharf.

There he crouched and watched, scarcely breathing, his eyes steadily regarding the black-sheened space cruiser moored at the extreme end of the wharf.

Satisfied at last that he saw no signs of life, Zender emerged from his concealment and moved swiftly across the clearing toward the space cruiser. He ran low, bent well forward, his tall frame silhouetted grotesquely against the gray murkiness of dawn.

He reached the wharf unchallenged, and gained the side of the big cruiser split-seconds later, moving swiftly toward the disembarkation hatch that yawned blackly open a scant twenty yards on.

There was no sign there of the two sentries who had guarded the cruiser from that post several hours before. Silently, Zender moved up the sloping gangwalk into the sidehatch opening. He almost stumbled over a dozing guard sprawled there.

The fellow snorted, spluttered, and started to cry out. In swift and vicious repetition the missionary brought his *electra-rifle* butt smashing down on his skull again and again. The guard was no longer breathing when Zender bent over his body moments later.

The missionary had scarcely turned away from his victim when he heard the puzzled shout of the other guard ring through the darkness. The voice came from a compartment at the end of the corridor onto which the sidehatch had opened. The sharp query was in Venusian.

The missionary shouted back instantly, in the same tongue, and was rewarded by the sound of a door slamming and feet running down the corridor toward the sidehatch opening.

Zender stepped back and waited.

He reappeared just as the second guard stumbled upon the body of his comrade in the darkness. Reappeared and swung the weapon in his hand, club-fashion, against the back of the Venusian brigand's neck. The sound of snapping bone was sharp and satisfying, and the brigand grunted and toppled forward across the body of his comrade.

The missionary waited, not daring to breathe, listening intently. There might have been a change. There might be more than two. A minute passed, and the silence held. There were no others. The Reverend Zender expelled his breath heavily, and leaned back against the sidehatch.

He stared at the bodies in the darkness at his feet, and suddenly realized that he was trembling from head to foot. He looked at the rifle in his hands, horror and disgust flooding him as his

big fingers touched the sticky stock. Sickly, he let it drop to the floor.

The Reverend Zender drew in a deep, shuddering breath and fought off the nausea that momentarily assailed him. His wide, thin-lipped mouth went taut, and he straightened his shoulders.

He looked around for another weapon, and saw the small pouch lying near the hatch opening. The bulge of the small, round objects in the pouch told him what it contained. He stepped over to it and picked it up. . . .

The Reverend Zender found Carol lying beside the trail when he started back from the cruiser some ten minutes later. The girl was unconscious, and a purple bruise marked her forehead. The rock against which she had fallen was less than a foot from her head, and the thorny crawler-vine that had tripped her was in evidence.

He stared at her for a moment of horror, then bent and lifted her into his arms. She was breathing softly, but regularly, and her heartbeat was strong.

The missionary looked around him in despair. There was no place he could safely leave her, and no time in which to bring her back to consciousness. He made his decision without further hesitation, and started down the trail in the direction the brigands had taken, his daughter still in his arms. . . .

TORGAN'S ROUTE proved to be incredibly more difficult and treacherous than the one over which the giant Igakuroan and the rugged Cardigan had tracked down Bennett. But as the green-skinned guide had promised, it was considerably more direct.

The trio arrived at Shaft Eighty in but half the time the outward leg of the journey had taken. The bright heat of early Igakuroan morning had supplanted the saffron shafts of dawn which had lighted the wide drill clearing when they had first set out from it.

Although in his time estimate on the potential movements of the brigands Cardigan had predicted that they would wait until dawn to start out for the *vardust* loot, he took no chances on his calculations being overly optimistic. He sent Torgan back along the main trail to guard against any premature approach of the brigands, while he went to work on Bennett's ankle with supplies from the medicine kits he took from the drill shaft shacks.

Bennett had regained consciousness, and through his partner's ministrations of strong restoratives, was clear-headed and considerably less exhausted than when they'd found him in the swamp jungles.

At Bennett's insistence, Cardigan had permitted his partner to try to walk. But the effort had been futile, and brought a fresh wave of nausea and dizzying pain to Bennett.

The blond young engineer sat weakly back, biting his underlip as tears came to his eyes.

"Dammit, Cleve," he cursed, "I'm a drag, not a help. You should shoot me, and travel light."

Cardigan snapped his fingers.

"That's a hell of a fine idea," he exclaimed.

Bennett looked at him somewhat startledly, as Cardigan turned away, dashed into a drill shack, and returned again a few moments later with a small box in his hand.

"Off with that space boot again," Cardigan said. He removed the boot from Bennett's injured foot as the other gritted his teeth against the pain.

Then Cardigan busily began to unwind the bandage wrappings he had so painstakingly put on his partner's horribly swollen ankle moments before.

Bennett watched hopefully, as Cardi-

gan opened the small box he'd taken from the drill shack. Cardigan brought forth a hypo needle and a small glass tube which he inserted in it.

He looked up at Bennett and grinned.

"We're going to shoot your leg," he said. "Full of *novophene*. Strictly local anesthetic. It'll leave you your reflex control and sensation in that foot without any further pain. I'll slap the brace wrappings back on the foot once it's full of the stuff. That'll prevent any motion of it which might be permanently injurious. In ten minutes you'll be able to put that foot under a drill driver without a touch of pain."

Bennett's grin was broad and appreciative.

"You're a conniving cutthroat," he said. "Any medical society would oust you for a stunt like that. But go ahead, butcher. I love it."

Cardigan drove the needle into Bennett's ankle.

"What the hell," he said. "No one can snatch my medical license. I haven't got one."

AS Cardigan had predicted, Bennett was able to move around on his feet again in ten minutes, even though he hobbled slightly. Torgan came back to the clearing as Bennett was slapping his partner's back.

"They on way along trail!"

The grin left Cardigan's face. "How far away?" he asked.

"They no know trail. Move damn slow," Torgan said, frowning in calculation. "They mile and half away now, closer two mile. Take maybe half hour, maybe little more half hour."

Bennett broke in.

"How many come?" he demanded.

"All many," said Torgan, holding up both hands, fingers spread.

"Ten, eh?" Cardigan frowned. "And we're three," he added thoughtfully. He turned to Bennett, still frowning. "If we're gonna save our hides and our fortune, Pete," he said, "we'll have to think fast. Any ideas?"

"Trail ambush," Bennett suggested after a moment.

"We're only three," Cardigan said, shaking his head. "We'd have damn little chance for that."

Bennett nodded in agreement.

"You're right," he admitted. "It was just the first thing that popped into my skull."

"Blow up once," Torgan said regretfully, referring to the explosion—caused by the *Venus Maiden*—which had destroyed the second of the raiding space cruisers. "Too bad no chance blow up again." He shrugged his big shoulders disappointedly.

Bennett and Cardigan spoke almost simultaneously, the latter's voice an instant later than his blond partner's.

"Damn, Cleve, that's an idea!"

"The *nitrosite!*" Cardigan exclaimed.*

They both stopped abruptly, looked at the puzzled Torgan, and broke into exultant laughter.

"Lord, Cleve," Bennett said, "there's enough of the explosive in the shack by the *var-dust* cache to do the job!"

Torgan stared at them puzzledly, wondering how his wishful thinking aloud had helped.

"We can barricade ourselves in the tunnel leading to the *var-dust* underground supply stores," Cardigan said. "Make it look strictly last ditch defense. That small ridge across the center of the clearing around the *var-dust* cache will seem like a natural for them to select as a breastwork from which to pick us off. The ridge is within excellent range of the underground cache

* Nitrosite, a highly developed explosive used extensively for shaft blasting in interplanetary mining operations.—Ed.

tunnel and they won't hesitate to line themselves up behind it for the seige."

Bennett nodded. "Perfect. And all we do is have the ridge mined with the *nitrosite* sticks, have the sticks fused in on a central charge wire which we set off from the tunnel entrance, once they're nicely grouped for the killing!"

"Brother," said Cardigan, "you're talking lovely language. But let's get started. We'll have to work fast. We can't afford to post Torgan on watch along the trail, since we'll need his expert hand in covering up any trace of our *nitrosite* planting."

CHAPTER X

THE *var-dust* cache was located in a slightly smaller clearing some two hundred yards from the open area around the shaft and drill shacks of Eighty. It was accessible only through a thick jungle of *astera-tropical* vegetation some fifty yards deep and three hundred yards long.

The cache itself lay at the far end of the clearing and consisted of an underground *duralloy* constructed shelter sixty yards long and twenty yards wide. It had but one entrance and exit, that consisting of a sloping tunnel which ran from the surface of the clearing twenty feet down into the vault.

Lying less than fifty yards from the tunnel entrance—and almost directly in the center of the clearing—was the natural mud ridge breastwork in which Cardigan and Bennett had determined to plant the *nitrosite*.

Save for the squat shack in the far corner of the clearing where the *nitrosite* had been stored out of range of shaft blasting operations, the rest of area was open.

Cardigan, Bennett, and Torgan quickly emptied the squat shack of its *nitrosite* supply, carrying the boxes of the foot-length explosive charges directly to the mud ridge breastwork in the center of the clearing.

Bennett buried the charges as Cardigan wired them. Following behind their operations, Torgan cleverly removed all betraying traces of the planted explosives.

At length the mine field was laid, covering the entire length of the natural breastwork and an area of a dozen yards behind it. Cardigan unwinding the charged wire from the breastwork to the tunnel, Torgan followed along cunningly concealing the evidences of its presence.

The planting of the mine trap took almost half an hour, and when it was accomplished, Bennett, Cardigan and Torgan retired to a position in the mouth of the vault tunnel to wait.

The moments passed like separate eternities. Torgan, of the three, was the only one showing no impatience. He lay sprawled forward on the tunnel floor with Cardigan at his right and Bennett just beyond, moving not a muscle as he held his *electra-rifle* trained on the edge of the clearing through which the brigand band would be most likely to appear.

Cardigan cursed in a steady, almost inaudible monotone betraying his impatience and anxiety, while Bennett shifted his position again.

Finally, after more minutes which were seemingly centuries, Torgan looked up from the sights on his *electra-rifle* to announce: "They coming."

Cardigan's cursing stopped abruptly. Bennett quit his restless shifting, and his lean, long body stiffened tautly. A minute passed, and then Cardigan and his partner were able to hear the sounds which Torgan had caught before them.

Voices, low and cautious, and the noise of bodies pushing through the thick jungle brush.

"They're at the edge of the drill shaft clearing," Cardigan whispered. "They'll be pushing through to this clearing in a minute or so."

THE voices were slightly more audible, but still indistinguishable, now, and definitely drawing closer with every instant. Then there was the sound of bodies moving through the underbrush once more, and Bennett exchanged glances with his partner.

"Open as accurate fire as we can from this distance the moment one of them pokes his head out of the clearing," Cardigan whispered. "If you can pick a couple off, so much the better. We want to make it seem like we're trying to keep 'em from gaining the breastwork."

"Right," Bennett muttered.

Torgan's grunt indicated pleasure at the suggestion.

The first of the brigands stepped from the brush into the clearing less than four seconds later.

Torgan's *electra-rifle* crackled, and the brigand, a short, swarthy man, dropped quickly to the ground, shouting something in sharp alarm.

"You're too high," Cardigan said.

Torgan's grunt of disgust was drowned by sudden shouts from the underbrush as the rest of the brigand band piled out into the clearing and, hurling themselves to the ground, immediately opened an incredibly swift answering fire.

Both Bennett and Cardigan were firing as rapidly as possible, now, as the brigands poured forth from the jungle thickets. The air was electric with the crackling exchange of fire.

"Got one!" grunted Cardigan as a brigand stepped from the underbrush and pitched back into it with a sprawling, wide-armed lurch.

"Another!" Bennett exclaimed an instant later, as the first of the attackers tried to rise and sprawled face forward, arms outthrust.

The fire from the brigand line suddenly ceased, the silence being shattered only by the *electra-rifle* crackling from the tunnel now.

"Hold it," Bennett snapped.

Torgan and Cardigan ceased firing.

"How many piled out?" Bennett asked. "I counted six."

"So did I," Bennett said. "As long as they keep their heads low we can't get any more from this range."

"There's four still in cover in the brush, then," Bennett declared.

In confirmation of his statement, a fresh burst of *electra-rifle* volleying started from the brush at the edge of the clearing.

"Low!" Cardigan snapped. Bennett and Torgan followed his example and hugged the tunnel floor. The fire from the *electra-rifles* crackled perilously close to their position.

"Cover fire," Bennett said, grimly satisfied, "while the four already out of the clearing make a dash for the breastwork!"

Cardigan grinned crookedly, reaching back to touch the charge switch on the mine plants lovingly.

"That suits me fine," he said. "I hope none of 'em stumbles."

"They've made the breastwork," Bennett reported a moment later, as he raised his head slightly again.

Electra-rifle fire began to crackle from the breastwork gained by the attackers, now, and it was just as effective in keeping Torgan, Cardigan and Bennett from response as the fire from the brush had been.

Cardigan lifted his head slightly.

"Another covering fire stunt," the reported. "The four from the brush are making a dash for the breastworks. There's a huge son-of-a-spacebum out

in front of that dash. Damn—he's almost Torgan's proportions!"

CARDIGAN dropped back and reached for the switch that would throw the explosion charge on the *nitrosite* buried under the mud ridge breastwork.

"Take a peek," he grunted to Bennett, "and let me know the minute they're all lined up for the trip to hell. We can't run the risk of one of 'em getting wise from that range and tossing an atomic grenade into our tunnel. We gotta make this short and sweet."

"Hold it," Bennett snapped. "We aren't certain that there aren't any more of them. If there are, they'll pop out an' line up with their pals behind the ridge in another few minutes. If there aren't, we'll know pretty quickly."

"Dammit, hurry!" Cardigan insisted.

The *electra-fire* from the breastwork ceased suddenly. Bennett raised himself on one elbow, peering forward.

"Just a few seconds longer," he cautioned Cardigan. "We'll know if there'll be others in a moment."

A voice coming from behind the mud ridge breastwork suddenly broke the silence.

"One chance," it boomed across to them. "Come out now, hands high, minus weapons. We want only the *vardust*. You can save yourselves if you come out, hands high, now!"

"Sure, give it to 'em on a platter, and then end up with our heads on the same platter!" Cardigan snorted. "We'll do no coming out, but they certainly will, right now!"

"Damn it!" Bennett snapped. "Hold it a moment longer. There might be others. That proposition rings suspicious to me."

"But not suspicious enough to me," Cardigan growled. "Here they go—up in smoke!"

At that instant another voice rang out across the clearing. A voice eerily familiar to both Cardigan and Bennett.

"Stop!" the voice cried. "Cease this carnage!"

The three in the tunnel turned instantly in the direction from which this new voice came, turned to see the tall, gaunt, black-tunicked figure to whom the voice belonged striding out into the clearing from the far corner.

"My God—the Reverend!" Bennett gasped.

"Zender!" Cardigan exclaimed.

The tall, big-boned, awkward figure of the missionary was moving slowly, majestically, toward the breastwork of mud ridge shielding the brigands. Cardigan and Bennett exchanged sick, wordless glances as the missionary threw his long arms wide and boomed forth another command.

"Repent, ye spawn of the devil!" the Reverend Zender thundered. "Repent, before more blood stains your hands!"

The tall, somber-tunicked figure had acted almost hypnotically on both sides of the battle line, and the ridiculously booming pulpit-like commands had furthered the electric spell.

"They'll plug him soon as they believe their eyes and ears!" Cardigan whispered huskily. "I'd better throw the switch pronto!"

"You can't!" Bennett grabbed his partner's arm savagely. "He's in range of the explosion. It would blow him spaceward with the others!"

CARDIGAN'S lips moved wordlessly in silent profanity. He glared from Bennett back to the gauntly commanding figure of the Reverend Zender who had now paused less than ten yards from the mud-ridge breastwork and stood rigidly, arms still outstretched, facing the brigands.

"The damned fool!" Cardigan grated.

"The crazy damned fool!"

"Good God!" Bennett exclaimed hoarsely. "I think I know what the idiot is trying to do!"

"Trying to do—nothing," Cardigan rasped. "He's gone raving mad, I tell you. He doesn't know what he's doing!"

"Don't you see?" Bennett choked. "He thinks he's creating diversion enough to get us the hell out of this apparent trap in the tunnel mouth. He's giving us our only possible break to make a dash for the jungle fringe. The poor damned fool would naturally have no idea that we're holed up here by choice. He thinks he's making the great sacrifice!"

Cardigan's expression was one of futile rage.

"If he's bent on making himself a sacrificial pig, we might as well blow the works up right now!" he argued.

"No!" Bennett snapped. He raised himself on his elbows and started wriggling from the tunnel mouth.

"Stay here, you idiot!" Cardigan hissed. "You can't help him."

But Bennett was already beyond Cardigan's frantic reach for his legs, wriggling rapidly over the clearing toward Zender. The tall, gaunt missionary's distraction still held the attention of the brigands behind the mud-ridge breastwork for the moment, and they weren't aware of Bennett's sudden action as yet.

Neither was the Reverend Zender.

"Put down your arms!" he roared. "Put down your arms and end this carnage!"

An *electra-rifle* crackled suddenly, and the Reverend Zender toppled sideward to the ground. Cardigan turned, to see Torgan, who had fired the shot at the missionary, methodically sighting his weapon for another blast at the man he'd downed.

"Torgan!" Cardigan hissed angrily.

The big Igakuroan turned an impassive green face to Cardigan. He looked surprised.

"Mission Boss in way; Torgan put out of way," he said. Then he added apologetically, "Only catch in leg. Better this time."

Cardigan grabbed the barrel of the weapon with one hand.

"Hold your fire," he whispered hoarsely.

Zender had fallen close by the front of the breastworks, and was apparently not seriously wounded. The missionary was trying to rise and having difficulty in doing so.

Bennett, at the sound of Torgan's shot, had stopped snaking forward toward the missionary, and now hugged the ground in the scant cover of a shallow ditch.

And then the brigand fire opened.

Cursing, Cardigan released his grasp on Torgan's gun and opened fire with his own rifle.

"All right," he shouted. "Fire now—at the one behind the mud ridge, not at the other two! Try to give Bennett Boss some sort of covering fire!"

CARDIGAN concentrated on seeking a target at any point along the breastworks, raking his fire evenly along the mud ridge in an effort to keep any of the brigands from exposing themselves long enough to draw an accurate bead on Bennett.

The crackling of fire and counter fire was an unbroken din, now; and Torgan, seeing Cardigan's method of fire, complemented it with a cross fire, working along from the opposite point of the breastworks.

Cardigan cursed volubly again, as he saw Bennett wriggle forward from the shallow ditch and continue toward the fallen Zender who, close to the edge of

the mud ridge, was out of the brigand's line of fire.

But Zender had seen Bennett at last, and was dragging himself from his position of temporary safety. Dragging himself out toward the center of the clearing between the two battle lines, and ignoring Bennett's line of approach.

Cardigan continued to work his *electra-rifle* steadily back and forth along the top of the mud ridge, and Torgan kept up his counter directional fire.

Bennett had paused again, hugging the ground, on seeing Zender's strange reaction to assistance from him.

"That should teach the damned lunatic a lesson, if he lives through it," Cardigan snarled. "His heroic rescue is a dud, as far as that mad-man Zender's willingness to be rescued goes."

The crackle of *electra-rifle* fire continued unabated, and Zender was now almost equidistant between the tunnel mouth and the mud ridge breastwork.

Torgan stopped firing long enough to jab Cardigan's arm with his thumb.

"Maybe blow-up now," he suggested. "Bennett Boss and Mission Boss both out of bad-close distance."

For once Cardigan cursed himself. He had forgotten the mine switch completely in the ensuing excitement after Bennett had started for Zender. Profanely, Cardigan told himself so, while ordering Torgan to take up the fire again as he reached back for the switch.

Cardigan found the detonation switch and turned, wanting one last assurance that both Bennett and the wounded missionary were out of range.

It was then that he saw Zender rise lurchingly to his feet.

The missionary was apparently oblivious to the fact that he was exposing himself utterly to a blazing crossfire. He seemed only concerned in fumbling at his black tunic jacket in search of something inside it.

Jaw rigid, Cardigan watched, his hand still on the detonator. What in the hell was the mad-man doing?

And then Cardigan saw. Zender's hand came forth from his black tunic jacket holding a silver metal ball the size of a huge egg.

"Good God!" Cardigan exploded, "An atomic hand grenade!"

The Reverend Zender let fly with the missile in the next instant. Let fly unerringly, hurling the missile into the center of the brigand breastworks.

THE explosion was immediate and deafening! The ground shook and smoke billowed whitely upward, obscuring the entire mud ridge. The shock of the burst threw Zender to the ground; and as Cardigan looked up again, the missionary took another atomic grenade from his tunic jacket and hurled it at what remained of the brigand defense works.

The second detonation was just as deafening as the first, and considerably more final in its results. There was nothing remaining of the mud ridge when the smoke cleared.

Bennett was on his feet, then, running toward the prostrate missionary. Cardigan, climbing from the tunnel, was followed by Torgan in a dash toward the same spot.

When they reached the missionary, Bennett had already assisted the Reverend Zender to his feet. The gaunt-faced man was dazed, and blood ran from his mud smeared features, but he smiled weakly.

"I think that took care of them, gentlemen," he said.

"Your daughter?" Bennett asked. "Where is your daughter?"

"She is safe," the missionary said. "Somewhere in the thicket fringes of the clearing."

Bennett went off instantly in the di-

rection the missionary had indicated, leaving Cardigan and Torgan to help the Reverend Zender.

The missionary made a grimace of pain as he hobbled along between Cardigan and the huge native.

"I hope I didn't interfere with your plans too much, Mr. Cardigan," he said dryly.

Cleve Cardigan suddenly exploded.

With cold anger at first—anger ultimately giving way to searing rage—he told the missionary just how much and in what fashion he had interfered with the mine trap which had been set for the brigands. And as Cardigan lapsed into lurid verbal estimation of the interference, the Reverend Zender grew increasingly tight-lipped and white-faced.

Cardigan finished with:

"And therefore, Zender, if you're pinning medals on yourself for your lunacy and luck, you know what you—"

Torgan cut Cardigan off.

"But Cardigan Boss," he said puzzledly, "blow-up trap not work. You throw blow-up switch once and it not work."

Cardigan gaped at Torgan in astonishment.

"What in the hell are you talking about?" he demanded.

"When Mission Boss stand up to throw egg, I see your hand, Cardigan Boss, throw switch by mistake. I wait for blow-up. But blow-up not come. Not come until egg from Mission hit mud ridge."

"You mean I accidentally threw the switch just before he tossed the grenade?" Cardigan exploded. "You're crazy, Torgan. Why, if I threw that switch it would have made an instantaneous detonation of those mines and —" He paused, suddenly white faced. "Just a minute," he said weakly.

Cardigan turned away and walked swiftly back to the tunnel entrance. He bent over the detonation switch box which had been left there. The switch had been pushed to "contact." He gulped, straightening up. Then a wire leading from the box to the tunnel edge caught his eye, and he saw why the detonator would never have exploded the mines. One of the sharp edges of the *duralloy* tunnel had somehow caught the wire and severed it.

Cardigan returned to the missionary and Torgan slowly. His face was crimson.

"Reverend," he said huskily, "I want you to do me a favor. I want you to use your kicking foot on my backside as soon as that leg of your heals again."

The Reverend Zender smiled.

"I'll be very glad to, Mr. Cardigan," he said. . . .

CARDIGAN looked up as the Reverend Zender, leg swathed in bandages, limped onto the shattered veranda of a badly scarred compound many hours later. Cardigan had put away a quarter of the bottle of whiskey on the table before him, and was well on his way toward finishing off the rest.

The missionary took a seat across the table from the wide-shouldered young man.

"You mind, Reverend?" Cardigan asked uncomfortably, indicating the bottle on the table.

The missionary shrugged, smiling faintly.

"I didn't come here to convert you, Cardigan. I came to serve as a missionary for the natives."

Cardigan grinned. "That's good," he said. Then he added: "How's your daughter?"

"Just fine," said the Reverend Zender. "It is just as well she was unconscious in those thickets when I marched

out to—ah—" he smiled wryly, "upset your plans. Otherwise, I'd have had trouble keeping her out of the thick of things."

"I take it, then, that she is stubborn," Cardigan said.

The Reverend Zender winced.

"Even more than her mother was," he said. He smiled. "Yes, Carol is a very determined girl. Though few people realize it, she more or less rules me, you know."

"Is that so?" Cardigan said. He filled his glass, took a sip, sighed. "She's having Pete Bennett show her around the shambles of the wharfside at the moment, isn't she?"

The missionary nodded. "I think she has taken a fancy to young Mr. Bennett."

"Have a drink, why don't you?" Cardigan asked suddenly.

The Reverend Zender shook his head. "Frankly, I'd like to. I don't disapprove of a little now and then in—ah—moderation. But," and his grin was suddenly wry, "my daughter will not permit me to indulge."

Cardigan had a hard time keeping his face straight.

"Then she drastically disapproves?" he asked.

The missionary nodded.

Cardigan broke into a grin which he could no longer conceal. He took a deep draught from his glass, put it down, and began to chuckle.

The Reverend Zender looked at him curiously.

Cardigan stopped chuckling, and, still smiling, explained:

"I was thinking of my partner, Pete Bennett," he said. "He has taken the same fancy to your daughter as she has to him. Supposing they're married?"

"They will be," said the missionary, smiling, "She told me she had decided to marry him, and she always has her way."

Cardigan's laughter was unrestrained. Between whoops he said: "Don't get me wrong. She's a beautiful girl. But Pete's habits are—well—as bad as mine. I was just thinking . . . how quick he'll have them changed."

The Reverend Zender's grin was wide.

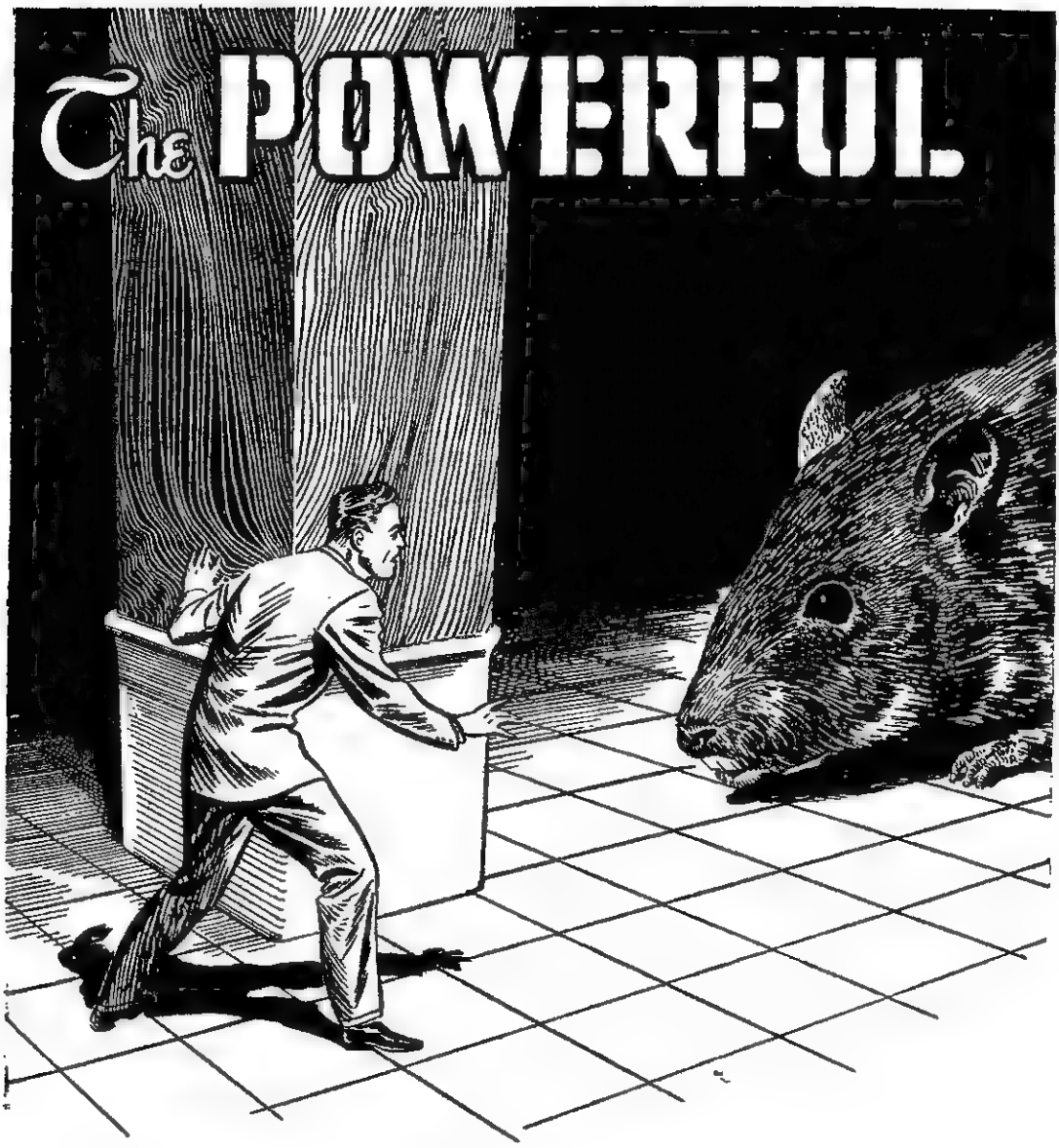
"They will be changed so swiftly his head will swim," he promised. Then he sighed. "But I am looking forward to that marriage, young man. For you see, once Carol has young Bennett to boss, I'll gain my own freedom."

Cardigan broke into laughter, and this time the missionary joined him. They were still laughing as Pete Bennett and Carol Zender came up the veranda steps.

Neither Bennett nor the girl knew why. . . .

NEW SUCCESS OVER ATHLETE'S FOOT

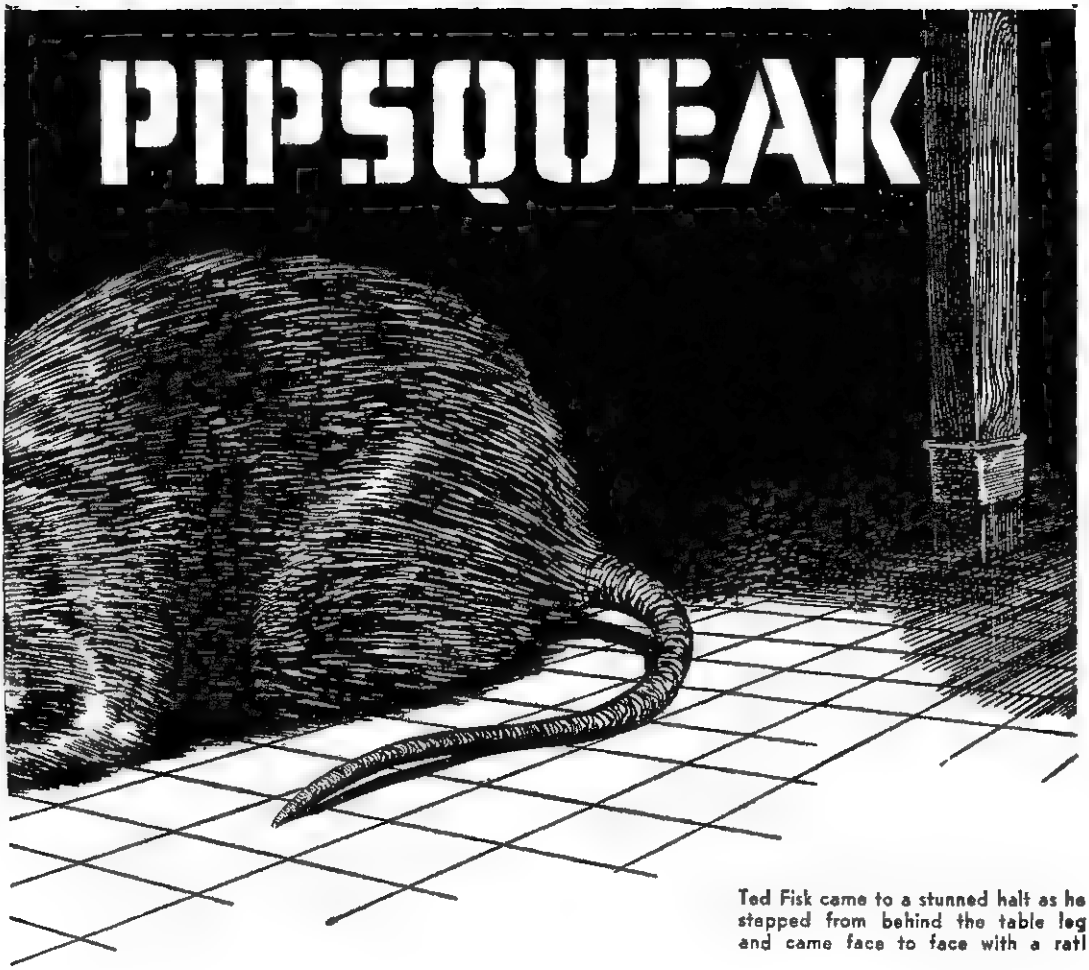
NEW SCIENTIFIC 2-WAY TREATMENT WITH **QUINSANA** POWDER -ON FEET AND IN SHOES – IS PRODUCING AMAZING RESULTS. IN TESTS ON THOUSANDS OF PERSONS, PRACTICALLY ALL CASES OF ATHLETE'S FOOT CLEARED UP IN A SHORT TIME.



BY ROSS ROCKLYNNE

Reduced to an inch-high mite, Fisk had to fight a full-size man. Yet the impossible task could have been achieved by the mere lighting of a cigarette!

PIPSQUEAK



Ted Fisk came to a stunned halt as he stepped from behind the table leg and came face to face with a rat!

"ARE you," demanded Jeannie, "a man or a mouse?"

The question was wholly sarcastic and it caught Ted Fisk on the point of his somewhat undeveloped chin. A flush began all the way at his prominent Adam's apple, and lost itself in the red thatch which spilled around his ears.

"I—I'm a man," he blurted doggedly at the pert, glowering face of Doctor John Woodruff's appropriately curvacious daughter. Having accomplished that much of a denial, his courage rose to unequaled heights. "And see here, Jeannie Woodruff," he threatened. "Just because my—ah—feet are—ah—a little bit on the horizontal side underneath—just because a dentist made a mistake and pulled—"

"I'm not talking about your draftboard rating, you dolt," said Jeannie coldly. "I'm asking if you are going down to the laboratory and ask daddy if you can marry me."

"Oh!" said Ted, paling. "Oh!"

"Because," Jeannie pursued the subject, watching him narrowly, her deep blue eyes sparking dangerously, "if you don't ask him, now, I'm going to accept Will Schuyler's proposal!"

The very name made Ted Fisk blanch. Will Schuyler, personnel department manager, at Coordinated Ma-

chine Tooling Works at Pasadena, was Ted's most deadly rival. Will Schuyler was everything that Ted Fisk was not. He was tall and dark and virile and knew how to handle any situation, even a situation involving Jeannie Woodruff. He was in love with Jeannie. He had asked Jeannie to marry him. And now it looked as if Jeannie would marry him if Ted didn't act mighty quick. And yet, the task Ted had to perform was one he abhorred to the very depths of his soul. Dr. John Woodruff was a bear. On more than one occasion, Ted had felt that he would sink right through the floor under the impact of one of Woodruff's acid glares. The man was as volcanic and unexpected as one of his fantastic inventions.

Ted Fisk's stomach began to boil like a cauldron.

"But—but your father doesn't like me!" he stammered. "He'll—he'll—"

"Are you," repeated Jeannie sweetly, "a man or a mouse?"

That settled it, and Ted knew that settled it. He emitted a strangled cry from his throat, turned and rushed for the basement stairs. He couldn't stand this torment any longer. Jeannie had said she would marry him. Three months ago. Ever since then, he had been trying to screw up his courage to ask Dr. John Woodruff for his daughter's hand. Well, the time had come for him to cross the Rubicon—or cast a die—or whatever it was that Caesar had done!

He rushed down the stairs, and across the cement floor of the brilliantly lighted laboratory, toward Woodruff, who stood bending over a scarred workbench, his bushy eye to a microscope.

"I beg your pardon, sir," Ted blurted in rapid fire. "The time has come! That is, I have received the permission of your daughter—"

"QUIET!" The great man raised his leonine head, his eyes piercing Ted like fire-blue knives. Woodruff sputtered, "You—you pipsqueak! You—you unutterable excuse! You—you— What do you mean by interrupting my experiment? What do you mean by smoking that cigarette in my laboratory? Get away from here!" he roared.

THE next thing Ted knew, he was about twenty feet away from Woodruff, at the other side of the laboratory, cowering behind a complicated piece of machinery which had a row of buttons on a slanting face, and a battery of cone-like reflectors projecting from it on long arms. Ted didn't know how he got there. He didn't remember running the distance. Nor had he realized that he was holding a cigarette in his right hand, while his left hand was still clutched around the silver cigarette case Jeannie had given him for his birthday. That was how Woodruff affected him.

He hurriedly scuffed out the cigarette and dropped the cigarette lighter into the pocket of his coat. Phew! Woodruff was working on a counter-reagent for the new nerve gas that the Germans were beginning to use. The government had fixed up this blackout laboratory in the basement of his home so he could work here on this important project without interruption. Cigarettes in the laboratory were dangerous. Ted realized that he must have lighted the cigarette when he and Jeannie got into the argument.

Finally he raised his head above his protection, looking out cautiously. Then tears came to his eyes. He had failed! He'd never find the courage to ask Woodruff again. He buried his face in his hands and leaned on the machine. Disconsolately, he reflected that Schuyler would marry Jeannie now, because if there was anything Jeannie hated, it was a coward.

Not until several minutes passed did he realize he was leaning on the buttons of the machine. A soft whirring finally obtruded itself on his senses. He jumped away. The dial face of the machine was lighted. He blanched, hoping that Woodruff didn't hear. Woodruff was finicky about his inventions. He said they were dangerous. He didn't let anybody play with them. He had them patented, just in case, but some of them he wouldn't let out to the public, because he said they would be used for wrong ends. If he discovered that Ted had actually started one to working—!

Ted frantically searched around on the button board until he found a release lever. He pushed the lever down, and the buttons jumped up to their correct place. He heaved a heartfelt sigh of relief as the dial face of the machine slowly darkened. That had been close.

Then he noticed a horrible thing.

He couldn't look over the top of the machine. He was smaller than the machine.

He was shrinking! He was actually, undoubtedly, *shrinking!*

It was a fact. He stood in petrified horror while he looked at the swiftly heightening top of the machine. The cone-like reflectors! They had been pointed at him while the machine was working. Some devilish ray had been focussed on his body. After he had shut off the machine, the rays had died, but the effects were continuing.

He opened his mouth to scream, but he couldn't make a sound. Nor could he move his muscles, his fright was so great. He saw the walls of the laboratory expanding like a square balloon, as if a giant were emptying his lungs into the room. The machine towered over him. He felt the cement floor moving in all directions away from his feet.

The thought that he would continue to shrink, forever and ever amen, that he would be lost in the cracks and crevices of the laboratory floor, finally gave him back control of his muscles, and even took away his fear of Woodruff.

HE WENT into headlong motion, running around the machine, his one desire to reach Woodruff and beg him to do something. But he realized with horror that he was like the frog which jumped to the middle of a log, jumped half of the remaining distance, half of the remainder, and so on, never reaching the end of the log. Because, as he ran, he shrank, and his steps became shorter and shorter, until, finally, he was about two inches high, and Woodruff was an unbelievable giant, hundreds of feet away!

He stopped stock-still, trying to conquer his panic. He was trembling. He was sweating. Now was the time to think things out clearly. He had made a horrible kind of blunder. It was the kind of blunder that made Woodruff furious. It was the kind of blunder that would make Jeannie throw her hands up in despair. She would have more contempt for him than ever. What should he do?

He was gratified beyond words to see that now he had stopped shrinking. The effects had worn off. If his calculations were right, he was a little over three inches tall. The thought made him feel cold and crazy, but at least he wasn't completely lost to human sight.

He heard an alarming, thunderous click and clack. He whirled—just in time to look up and see Jeannie taking seven-league-boot steps toward him. She had seen him! He quivered with mortification. She took one more step and then—

Ted threw himself to one side just in time, his heart beating madly. Jeannie's huge, high heeled slipper landed

where he had been. He was thankful she hadn't seen him after all.

He heard a sound like quick thunder. It wasn't thunder, though. It was Jeannie, talking to her father.

"Where's Ted, daddy?"

"Eh? Eh?" Ted saw Woodruff lift his head from the microscope. "What? Confound it, daughter, how should I know where he is? Oh, yes. He was in here. Started to ask me something—I must have hurt the pipsqueak's feeling." He made an irritated sound in his throat.

"Oh, daddy!" Jeannie's face was hurt and bewildered. "We've all been hurting his feelings these days. I had an argument with him just now. He's so sensitive, sometimes, but he's really fine in spite of that— Oh," she exclaimed petulantly, "sometimes I get so exasperated with him that I feel like *really* marrying Will Schuyler."

Ted Fisk burst out with an anguished, involuntary sound of protest. Woodruff and Jeannie jumped. Jeannie screamed, and brought her flaring green skirt around her slim knees.

"Confound it!" Woodruff rumbled, his eyes roving around the floor where Ted's voice had come from. "I'll have to put another rat-trap down."

And as Ted Fisk dived into the sanctuary beneath the lab table, the ironic, horrible truth struck at him. He remembered Jeannie's sarcastic question.

He wasn't a man. Not as far as *size* went, anyway.

He was a mouse!

HE STAYED under the lab table for the next minute, trembling in his utter mortification while Woodruff clumped around the laboratory, hoping to find the mouse from which that squeak had emanated. If Woodruff found out it was Ted that squeak of protest had come from, his rage would know no bounds. Then and there Ted decided on his course of action. Darned if he'd let Jeannie see him in this ridiculous size. He'd wait until Woodruff stopped work for the day, and then he'd come out, and somehow turn the lights on, and find out how to work the reducing machine in reverse, and come back to his original size. No one would be the wiser!

While he hovered there, he discovered that his sense of smell seemed to have leaped to superhuman abilities. He smelled and *classified* dozens of odors in the laboratory which he ordinarily would have had to be right on top of to recognize. He even recognized the raspberry flavor of the lipstick that Jeannie was wearing. He marvelled. How was it possible? Why, of course. The taste buds at the back of his mouth were now clustered so close together, so concentrated that they were a thousand times more sensitive to the odor molecules which permeated the air.

Reasons for other things struck him now. His voice might sound normal to him, but to normal humans it would be like a squeak. His voice box was smaller and would emit, to normal ears, very short wave-lengths of sound. That was the reason Jeannie and her father's voice sounded to him like thunder. The wave-lengths they emitted were extremely long.

"And I'll bet," he thought to himself in awe, "that if I tried, I could jump dozens of feet into the air. For the same reason that an ant can carry a hundred times its own weight!"

The magical possibilities of the world of the small staggered him, but he had no time to think out other possible marvels. For just then, Will Schuyler came into the room.

"Howdy, folks!" The voice boomed out, but Ted recognized it. He stiffened with hate, and peeped his blaz-

ing face out from under the table. Will Schuyler, big and dark and manly, came swinging forward. Ted winced as he saw the way Woodruff gave up his futile search for a mouse, and stuck his hand out to Schuyler.

SCHUYLER was looking at Jeannie, a worshipping expression on his clean-cut face. "Hello, honey," he said tenderly (right out in front of Woodruff, Ted thought murderously, and a trifle enviously for such colossal nerve). "What's the matter? You look scared."

"Sure, I'm scared," Jeannie said violently. "We heard a mouse!"

Schuyler laughed confidently. "Don't you worry about mice with me around!" he said. "I'll protect you." He winked at her. Then his manner became brisk. "I dropped over thinking you two might care to have a lonely bachelor take you to dinner. How about it? It's six o'clock."

Woodruff approved of Schuyler. He dug Schuyler slyly in the ribs. "Won't be a bachelor long, though, will you, Will?" He roared, throwing back his hairy head.

"Daddy!" disapproved Jeannie. "Of course we'll go to dinner with you." She tossed her head, doubtless remembering Ted. "We'd love to."

"Fine!" Schuyler's hand was in his right pocket, fiddling nervously with something. Ted murderously watched him, his gorge rising.

Woodruff went around turning out the lights, and the three of them left the laboratory, the door closing. Then Ted heard Schuyler's voice on the stairs.

"I left my hat back in the lab!" he said suddenly. "Go right on up, folks —I'll meet you up there."

He came back into the lab, switching on the lights. Ted saw him stand against the door in a listening position as Jeannie and her father walked up the stairs. Then, a satisfied expression on his face, Will Schuyler's hand dived eagerly into his pocket. He brought out a flat package of paper. His hands worked feverishly, unwrapping the package. He stuck the wrapping carefully back in his pocket. The contents of the package he held in his hands. Ted saw that they were wads of damp newspaper. His uncanny sense of smell immediately told him that the newspapers were saturated with phosphorus.

Phosphorus! A thrill of terror shot through Ted. Why—why that meant — He went cold all over at the enormity of the thing that was happening. He started forward, about to yell a protest. But he gave up that idea. Instead, trembling with a strange fascination, he watched Schuyler speeding around the room, throwing wads of the phosphorus saturated newspaper into a waste-basket, onto shelves filled with boxed chemicals, under chairs, and finally under the lab table. Ted got back under the lab table in time to avoid being seen. Then the lights went out and the door slammed.

Ted was petrified. Phosphorus! And *as soon as those damp newspapers dried sufficiently, they would burst into flame!*

THE appalling truth burst in Ted's brain like a star-shell over London. Schuyler meant to destroy Woodruff's laboratory, completely. And why? Because Schuyler was a Nazi spy!

Ted shivered and shook and sweated and panted with the shocking discovery. It couldn't be any other way. It all fitted in too perfectly. Wasn't it at Coordinated Machine Tooling Works that all those explosions had occurred recently? And Will Schuyler was personnel manager there! He was actually hiring other Nazi saboteurs to work

there. Now he had turned into a saboteur himself.

"Why, the dirty dog!" Ted whispered in horror. "He knows that Woodruff is working under government supervision to find a counteracting agent for a new gas the Germans are using. He knows that Woodruff has been working over a year on the project. By destroying the laboratory, he'll destroy all Woodruff's work. The dirty dog!"

His mind was a chaos. What should he do? Run after Jeannie and Woodruff and tell them? But no! By the time he told them, even if he could find them, the newspapers would have dried sufficiently. Woodruff's whole home would become a rioting inferno. No, Ted would have to avert the disaster himself—but at dreadful, appalling risk.

But he made up his mind. He whirled his tiny, three-inch body, wrapped his arms around the huge wad of phosphorus-saturated newspaper which was lying beside him where Schuyler had thrown it. With his light but awkward burden, he scuttled out from under the table, and dropped the paper onto a cleared space on the cement floor. His skin tingled with terrible anticipation. The newspaper was almost dry! If it had ignited while he was carrying it—He shuddered the thought away.

It was so dark that he almost couldn't see. His superhuman sense of smell led him directly to the waste-paper basket, though. He could barely see the huge, circling rim. He flexed his muscles and leaped what seemed to him a dozen feet. He caught triumphantly onto the edge of the wastebasket. He tried to pull it over. But it didn't work. He wormed his way over the edge, hung in the dark interior, and let go. He fell into a mass of wadded paper.

He was panting, sweating, his eyes bulging. Now he was right in the middle of a potential incendiary cauldron. He'd have to work fast.

He found two wads of paper that smelled of phosphorus. He threw them out of the waste-basket like huge basketballs. He worked his way back to the floor, and carted these wads to the cleared space too.

HE WAS a whirlwind of speed after that. He scooped all the dangerous stuff off the floor, got it all into one pile. Now there was one more to get—but it was out of reach, on the shelves. It was too dark in the blacked-out lab to risk jumping. He'd have to turn the lights on. But how?

Well, he was strong now—he was a superhuman, even if he was small as a mouse. He wrapped his tiny arms around the leg of a chair that was nearest the light switch. He strained and panted and tugged and finally burst into a whole-hearted, yet terrified curse. He couldn't move the chair!

He was frantic now. He *had* to turn on the light. And he couldn't waste any time on it. The California night was almost always somewhat chilly, no matter how warm the day, but today had been an exceptionally hot day, and the night was warm. Schuyler, of course, had taken that into account. Any moment, the phosphorus-saturated paper on the shelves would balloon into white, hot flame.

He went to the light-switch, staring up at it. He could barely see it, about five feet above the floor. He flexed his tiny leg muscles and leaped. He went too high. On the way down, he slid along the wall, and actually touched the light switch, but he discovered that it was one of those which had to be thrown *up* instead of *down*.

He would have to flip the switch on the way up!

He tried. He tried a dozen times. He bruised and scraped himself against the wall. Finally, he fell back, and lay on the floor, his hands bleeding from scraping against the calcimined, rough surface. He was dazed. He was sobbing with pain. He was half unconscious.

The thought of the remaining wads of newspaper drove his mind out of its foggy stupor. On hands and knees, he crawled to the far edge of the laboratory. There was an old, tattered wicker chair there. It wasn't as heavy as the regular chairs, but it wasn't as close to the light switch, either. Nevertheless, maybe he could drag it that far.

Wearily, he came to his feet, wrapped his arms around the bottom of the leg. And the chair moved! Triumph drove some of the weakness away from him. The chair moved readily, but so slowly. He strained, dragged it with a scraping sound across the cement floor. He didn't know how long it took. He only knew that it took too long. He was sobbing with tearful panic by the time he got the chair to within a few inches of the light switch.

He was barely able to summon the strength to get to the seat of the wicker chair. He skirted around the hole in the middle, grabbed hold of the horizontal wooden bars on the back of the chair, and climbed up to the top bar. He balanced himself there precariously, but he had won! Victory sent new blood coursing through his veins.

He reached out to the light switch. He was a little below it. He only had one hand to work with. It closed around the light switch, but he was in such a position that he couldn't exert any upward force. Frustration brought to his lips curses that he hadn't realized he knew. He had failed again!

And then, under his weight, the chair started to tip! His eyes bulged. But the chair fell toward the wall, and leaned there. Ted's breath exploded in relief. Crazily jubilant, he pushed up against the light switch with both hands —and light flooded the whole laboratory!

GETTING onto the shelves was an easy matter after that. He could see what he was doing. He gaged his distance. He jumped in a nicely calculated six-foot arc, and landed on the edge of the topmost shelf. Schuyler had distributed wads of paper everywhere. Ted ran amongst the bottles and boxes of chemicals, kicking the danger-freighted incendiaries to the floor, dropping from shelf to shelf, working under the impulse of an all-pervading fright. He couldn't expect his luck to hold out forever. The wads of paper were almost brittle with dryness!

He jumped the six feet to the floor, landing unharmed. In three minutes, he had carted all but one of the wads to the pile of paper in the cleared space. He approached that last one with sickened nerves. It was a battle for him to make himself pick up the last wad. But he did, his heart beating madly, the artery in his temples throbbing a maddening diapason of fear.

He threw the wad the remaining distance into the pile and ran, without waiting to see it land.

And all hell seemed to break loose!

There was a roar of white-hot flame, a devilish popping sound like dozens of machine guns working all at once. Ted turned, shielding his eyes from the brilliant conflagration. Sparks flew, smoke rolled up to the ceiling. But within the minute, the spontaneous combustion was over with, nothing had caught fire, and here was a pile of charred, curling, smoking embers in the middle of the floor.

Ted collapsed. He been traveling

only on his nerve. But some impulse made him turn the light switch off. He still didn't want Jeannie or her father to see him in his littleness. But after that, he was too dead tired to want to do anything but sleep. He would sleep! And in the morning, before Woodruff came down to the laboratory, he would somehow reverse the machine and bring himself back to his original size. His brain was somewhat foggy now. He would have to expose Schuyler, of course. That should be easy enough. What he needed now was sleep. He crawled back to his sanctuary underneath the lab table.

No sooner had he got under the table, than his uncanny sense of smell warned him of danger. The short hairs on his neck stood up. And at what he saw, he stiffened with terror.

A rat!

He was staring directly into its luminescent eyes. He could clearly make out the wicked triangle of its nose. He could see the white, sharp little teeth. The rat was staring at him, avidly.

How long he looked back, Ted didn't know. He did know that the rat intended to kill him and eat him, of which it was perfectly capable.

But during all his Herculean labors, Ted had been made exceeding bold. Moreover, his exhaustion was something like intoxication. He drew a deep breath.

"BOO!"

The rat squeaked in utter confoundment, reared back, turned and fled in fright.

Smiling with a peculiar, complete contentment, Ted eased himself out to full length, and went to sleep.

TED'S eyes snapped open. He had been wakened by the opening and closing of the door. It was still night, for it was dark. Then, abruptly, the light went on. Ted remembered everything that had gone before, and suddenly he knew who had come into the lab in the middle of the night. He popped his head out from under the table. He was right. Will Schuyler! The saboteur was standing at the light switch. There was an alarmed expression on his face. He was looking around the laboratory. Then his eyes rested on the pile of charred paper. His breath sucked audibly through his teeth. His eyes dilated. He seemed to turn a little green.

For a minute, Ted thought Schuyler would turn and bolt, for there was ample evidence that *someone* knew of his plot, and had foiled it. But who? Ted could see that fateful, frightening question revolving in Schuyler's eyes. The man was confused, wavering.

Questions boiled in Ted's brain, too. Where were Jeannie and her father? Why had Schuyler come back. The answer to the last was evident though. His fool-proof plan to set fire to the laboratory hadn't worked. He had come to find out why.

And what would Schuyler do now?

Ted waited in growing fear, as the big, handsome man stood there, thinking things out. Then Schuyler burst into a full-throated, unpleasant curse, his eyes turning a little wild. His lips turned up in determination. He rushed across the laboratory—and Ted's blood congealed as he saw the man pick up a twenty-five gallon tin of gasoline which Woodruff kept on hand to clean his slides and retorts.

Schuyler jerked off the cork, nervously. But with a wild, uncaring motion, he upped the tin of gasoline, and sloshed a fan-shaped stream of the gas on the chemical shelves. He rushed about the laboratory, scattering the gasoline everywhere, on turbines and generators, on piles of rubber insula-

tion, on chairs and machinery.

Before he knew it, Ted went into action. He didn't know what he was going to do, but he knew he had to do it, and soon. Schuyler was a madman. He was determined to bring the whole house down in flames. Probably, he had been given his orders, direct from Berlin, and he had to succeed, now. And it was almost a fact that Jeannie and Woodruff—not to speak of Ted Fisk—were in the house. They would die in the flames!

Ted leaped with a scream of rage. He landed on Schuyler's well-groomed head. He clawed at the man's hair, screaming bestially. He shouted mad words in Schuyler's ear. Schuyler whirled around with a hoarse, confounded shout. The can of gasoline sloshed away from his grip as his hands went up to his head. Ted scuttled to temporary safety on Schuyler's broad shoulder.

His danger was critical. He would have to jump, and somehow find a way to stop Schuyler from setting fire to the lab. But Schuyler saw him as he arched through the air. The man's hand reached out with a snapping motion, closed around Ted. Ted went faint with the grip, but even fainter with the knowledge of his blunder. He had allowed himself to get in Schuyler's power, and thus robbed himself of any chance he might have had to help Jeannie and her father.

HE STRUGGLED out of semi-consciousness, but only because Schuyler had partly released his grip. His foggy eyes opened and stared into Schuyler's. Schuyler showed no surprise. He had evidently thought things out to his satisfaction.

"So!" Schuyler snapped furiously. "Woodruff put you into small size with one of his inventions—to spy on me!"

"He didn't know anything about it!" Ted blurted dizzily. Then he could have chopped his tongue out. "Let me go, you—you snake!" he shrilled. He punched with his arms—at nothing. Schuyler laughed unpleasantly while his diminutive captive wriggled.

"Don't be silly," he said coldly. "I can't let you go now, not when you know what you do." Schuyler's face was strained, but it was evident that he had made up his mind. "I'll have to kill you."

Ted suspected that. But he wanted to die now. So nearly to succeed, and then to fail. His poor opinion of himself, bolstered by his amazing experiences, returned to plague him.

And then the door opened, and Woodruff, followed by Jeannie, came into the room. Jeannie looked ravishing in her purple flowered house-coat, which she held tightly around her slim figure. Her hair was mussed becomingly. She had on bedroom slippers. Her lovely eyes were still fuzzy with rudely awakened sleep; it was apparent they had heard Ted's screams.

"What on Earth?" said Jeannie.

Woodruff's bushy grey eyebrows shot up. "Will!" he said violently, bemusedly. "What the devil are you—"

Then Jeannie screamed as she saw Ted.

"Ted!" she gasped, turning pale.

The two of them were a tableau of utter confoundment. Ted, even in his danger, was mortified beyond words. He didn't want Jeannie to see him like this. He turned beet-red. But he knew his first duty lay in warning Woodruff of Schuyler.

"Schuyler—" he began in his squeaking voice, but he ended in a scream of pain as Schuyler squeezed him.

When his senses stopped swimming, Ted saw that Schuyler had a gun out—a .38 automatic in a .45 frame, he

judged, the hand weapon commonly used in the U. S. Army. And Schuyler was speaking to Jeannie and Woodruff, who had started back as they suddenly realized that things were not as they should be.

"Don't be afraid," Schuyler snapped. "One should not spend one's last few moments in fear. One should spend them in prayers."

"But—but Will!" Jeannie faltered, one white hand to her pulsing throat. "You—you can't— I thought you'd gone home!"

"You thought I'd gone home!" Schuyler's voice was a whiplash, ugly, primeval with an incomprehensible hate. "When you told me definitely that you loved this excuse for a human being and that you were through with me, I decided I was through with you, too."

HIS lips tightened. He told them without shame of how he had plotted to destroy the laboratory. If Woodruff completed his investigations into a counteragent for the new nerve gas, Schuyler would have met his death from other Nazi agents. "I tried to give you two a break," he said, bitterly. "I invited you out to dinner, so you wouldn't be caught in the flames when the house took fire. But in the meantime, your precious Ted Fisk—" he squeezed Ted painfully, viciously "—was scuttling around in the dark collecting my incendiaries. When we came back about an hour ago, you'll remember, Jeannie, your father went to bed. I asked you to give me a yes or no answer about our marriage. When you said you loved Ted, I made up my mind. I left the house when you opened the door, but I had previously thrown the catch. So I came back into the house and went downstairs. I didn't understand why the house wasn't in flames when we came back. And I had to make sure that it was in flames before I left."

Woodruff looked very old and grey. "A Nazi spy," he whispered. "I never suspected. And your plans now?"

"Changed, somewhat," Schuyler snapped. "And improved, I'll guarantee. This machine which shrinks objects is doubtless somewhere in the laboratory. I'll find it and learn how to use it. The Leader will be glad to have a machine such as that. His scientists will study it. Whole armies can be shrunk, transported vast distances, and then brought back to their original size. It will mean complete triumph eventually. As for you—" He paused, waggling the gun, his face hardening with stern purpose. "I can't afford to be sentimental. After I—" he moved the gun "well, after that, I'll put your bodies under the machine, and shrink you down to sub-microscopic size. There'll be no bodies to convict me—"

"But you couldn't be that heartless," Jeannie flashed, at last recuperating from Schuyler's revealment of his true character. Spots of anger burned on her lovely cheeks. "You said you loved me—"

"I said a lot of things," Schuyler said harshly. "But at a time like this, I can't afford to be sentimental, as I told you!"

He was pale with his own decision. And Ted realized, as Schuyler took a grim step forward, that Schuyler was nerving himself for his murderous act. In another few seconds —

Ted's brain was a chaos. He was enough of a realist to know that this was all his fault. He'd been in a position of power—he'd have been able to trip Schuyler up some way, if only he hadn't let himself get into Schuyler's grip. Now the situation was vastly worse than before. The enemy would

have a strangely invincible weapon to use against the world. Not only Jeannie and her father, but countless other people, would die—and because of him!

He groaned inwardly, and from long habit when he was deeply troubled, reached into his shirt pocket for his cigarettes. His hand stopped halfway there as the idea struck him. Suddenly he was abrim with hope. One chance!

One chance—but would it work? No matter, he would have to try it.

HE TRIED to catch Woodruff's eye. Woodruff's eyes dilated with puzzlement as he saw Ted's unobtrusively waving arm. He was still puzzled when Ted drew his cigarette lighter from his pocket. Ted's heart sank. But he would have to trust in Woodruff's reactions.

He leaned far over, praying desperately, held the cigarette lighter directly under the left ulnar artery of Schuyler's strong wrist, and flipped the wheel across the flint. And the wick caught.

And caught with a vengeance! An incredible tongue of flame leaped up, curled around Schuyler's wrist, burning with an intense white-hot brilliance. Ted himself was smote with an almost unbearable heat. Several things happened at once. A piercing scream of unholy agony came from Schuyler's mouth. There was the sound of metal striking cement. Woodruff yelled in delight. There was the smell of roasting, crisping flesh — and abruptly Schuyler's left hand opened and Ted fell unharmed to the floor.

Unharmed and yelling. His plan had worked! Schuyler was entirely bereft of his senses, howling with pain. He didn't even have the presence of mind to resist when Woodruff leaped on him. Woodruff could have picked up the gun from where Schuyler had dropped it on the floor, and held it on Schuyler, but it was apparent that Woodruff preferred plain, undiluted action. His fist came up in a joyful, plunging arc, smashed with an audible crunch against Schuyler's horribly twisted face. Schuyler fell backward, as if a giant had placed a foot against a tall building and pushed. He fell like thunder, then twitched and turned limp.

Woodruff stood over him. "The dirty dog!" he roared, beside himself. "Going to murder us! Going to betray the United States! It was a mercy to knock him out. His hand is half burned off at the wrist!"

It was true. Jeannie started to come forward, and at the sickening sight, she turned away. On second thought, she stooped, and with horror, Ted saw she was going to pick him up.

He was mortified, but he couldn't do anything about it as her soft fingers closed around him. "Let me down!" he howled, kicking out with his legs. "It's—it's indecent! You—you'll fall out of love with me if you see me like this!"

JEANNIE burst into a squeal of laughter, and hurriedly put Ted on the table. She strove to control her sudden mirth. Ted ran and tried to hide behind the microscope, but resignedly he came out when he saw they were watching him. Woodruff was looking at him with a strange, surprised expression.

Ted suddenly told the whole story, how he was caught in the rays of the machine, and didn't dare attract anybody's attention.

Woodruff whooped with delight, striking his thigh. "But if you *hadn't*

been caught in the rays of the atom-compression machine, my lad, where would we all be? Schuyler would have destroyed my work on the counteragent to the new nerve gas! Instead, we've got a Nazi spy!"

"So you're the hero of the occasion!" Jeannie smiled deliciously, bending down and looking at him until he burned red. Then she looked puzzled. "But I don't understand, Ted, dear. You used a cigarette lighter to burn Schuyler, didn't you? But just an ordinary flame wouldn't have made him lose all control of himself, and certainly couldn't have burned him so horribly." She shuddered.

In spite of himself, Ted couldn't help but feel important. Fancy Dr. John Woodruff waiting for Ted to give out with information! His tiny chest came out.

"But it *wasn't* an ordinary flame!" he explained. "The lighter fluid was concentrated until it was a thousand times more inflammable than gasoline. It was compressed when I was compressed. The flame must have had a temperature of close to a thousand degrees Fahrenheit! The only reason I wasn't burned by being near it was because I was kind of concentrated myself."

Woodruff said quickly, softly, "I'll say you were concentrated, lad. Plenty concentrated! It took nerve to do everything you did—lugging that phosphorated bunch of newspapers around. What if Schuyler's hand had squeezed instead of opening when the flame struck it?"

Ted turned green at the thought. "That was a chance I had to take, sir." He looked at Jeannie then, at her eyes, which were wet and sparkling with pride. "Well, I guess that takes care of Schuyler. There's one more thing to take care of." He looked directly at Woodruff, without flinching. "I want to marry your daughter, sir. And I warn you, sir—I warn you, that it doesn't make the slightest particle of difference to me whether you want me to marry her or not. We love each other, understand? Well, what do you say?"

Anybody that could scare a mouse away with a boo, he thought, certainly couldn't have much trouble with a bear. Woodruff burst into a surprised guffaw. "Why, of course you can, my boy!" he roared in delight. "And with my blessings!"

Ted heaved a great sigh. It hadn't been hard at all. He looked desperately at the giantess that was Jeannie; looked at her soft face, and her lips, parted so ravishingly. He swung on Woodruff again.

"Please, sir," he begged, forgetting his new-found dignity. "Please, bring me back to my original size—in a hurry—so I can kiss Jeannie!"

THE END

★ TOLD BY THE MARINES ★

THAT U. S. Marines have a sense of humor is evidenced by some of the "wise cracks" which have come out of the Pacific War. Here's one:

After taking refuge in an abandoned hut at Tulagi seven Japs suddenly ceased firing. The attacking Marines suggested that they might be out of ammunition.

Private First Class George Petrucel then shouted:

"If you're out of ammunition," he yelled, hurling a hand grenade toward the Japs, "then divide this among you."

Then there is the remark made by Private First Class Alex Stewart when his trench mortar crew was under heavy Japanese machine-gun fire.

"You know," he said to his companions, as a bullet whined past his ear, "I think the so-and-so's are trying to kill us."

VIGNETTES OF FAMOUS SCIENTISTS

By ALEXANDER BLADE

Joseph Black

Of especial value was his work in the field of gaseous chemistry and in establishing the law of specific heat.

JOSEPH BLACK, a Scottish chemist and physicist, was born at Bordeaux, France, in 1728, where his father—a native of Belfast but of Scottish descent—was engaged in the wine business. He was educated first at Belfast, then entered the University of Glasgow, then in 1751 he went to Edinburgh to complete his medical course, and in 1754 took his Doctor's degree. Becoming first a lecturer in anatomy at Glasgow, he was ultimately appointed to the chair of chemistry at Edinburgh University where he remained during the balance of his life.

His inclinations led to research, and resulted in several fundamental discoveries of importance. The most notable of these was the clear demonstration of the presence of the gas now known as carbon dioxide, as a component of those mineral substances called carbonates, of which limestone in its natural state is the most familiar example. He called this gas *fixed air*, and ascertained some of its properties, but not its essential composition.

His thesis on the nature of the mild and caustic alkaline earths contained his first contribution to chemical science. In those days the transformation by heat of a mild alkali (a metallic carbonate) into the corresponding caustic alkali (an oxide, or hydroxide) was interpreted on the hypothesis that the mild alkali combines with the fiery principle called phlogiston, and thus the caustic alkali is produced. However, Black showed that the transformation was accompanied by a loss of weight, and that during the transformation an aeriform substance escaped from the mild alkali.

This aeriform substance he found to be different from atmospheric air and gave it the name of *fixed air*. Thus the existence, both in the free state and in combination of a gas different from air—carbonic acid—was first clearly established by Black.

It is curious that Black left to others the detailed study of this *fixed air* he had discovered. Probably the explanation is pressure of other work. In 1756 he succeeded William Cullen as lecturer in chemistry at Glasgow, and was also appointed professor of anatomy, though that post he was glad to exchange for the chair of medicine. He also practiced as a physician. Moreover, his attention was engaged on studies which ultimately led to his doctrine of latent heat which he announced and elaborated between the years 1759 and 1763.

This theory met with almost universal acceptance at first, but later was shown to be merely a step—though an important one—towards a correct understanding of the phenomena at the foundation of all exhibitions of energy.

He noticed that when ice melts it takes up a quantity of heat without undergoing any change of temperature, and he argued that this heat, which, as was usual in his time, he looked upon as a subtle fluid, must have combined with the particles of ice and thus become latent in its substance. This hypothesis he verified quantitatively by experiments performed at the end of 1761. In 1764, with the aid of his assistant, William Irvine, he further measured the latent heat of steam, though not very accurately. He taught this doctrine of latent heat in his lectures from 1761 onwards, and in April, 1762, he described his work to a literary society in Glasgow. But he never published any detailed account of it, so that others, such as J. A. Deluc, were able to claim the credit of his results.

In the course of his enquiries he also noticed that different bodies in equal masses require different amounts of heat to raise them to the same temperature, and so founded the doctrine of specific heats. He also showed that equal additions or abstractions of heat produced equal variations of bulk in the liquid of his thermometers.

During the period 1766 to 1790 when he occupied the chair of chemistry and physics at the University of Edinburgh, he published two papers on these subjects, entitled "Observations on the More Ready Freezing of Water That Has Been Boiled," and "An Analysis of the Waters of the Hot Springs in Iceland."

After his death his lectures were written out from his own notes, supplemented by those of some of his pupils, and published with a biographical preface by his friend and colleague, Professor John Robinson, in 1803 as "Lectures on the Elements of Chemistry," delivered in the University of Edinburgh.

MADCAP OF MARS

By FESTUS PRAGNELL

A strange madness struck Mars, and even the emperor spoke gibberish! It was beyond all understanding . . .

There was no mistaking the meaning of the guns in the intruders' hands

PRINCESS WIMPOLO, daughter of Emperor Usulor and heiress to the throne and to the overlordship of all Mars, is the dearest girl I've ever known and everything to me that a wife should be, even though, she weighing half a ton to my seven stone, I can't sit her on my lap as most husbands do but have to sit on hers instead. True, she is used to giving orders and likes to have her own way, but so would you if you were the only child of the boss of a whole planet.

The little Earth colony on Mars might not have nearly such a good time if it was not for Wimp. We are very few among the gigantic people who live in the underground world of Mars. We might get kicked around pretty badly. But, thanks to the sweetness of Wimp, we got taken up as pets and playthings of the rich people of Mars. Rich ladies would take their little Earthlings around with them saying, in Martian, "Come along, Fido!" "Balance this lump of sugar on your tiny nose, Johnny!" "Watch the little darling jump right over my head when I point up and whistle!" "Huh! Talk about your Jacko! My Alice can balance herself on one hand on the top of my head for a whole minute!" In the light gravity of Mars we could do surprising tricks. Not very dignified, but the best of everything there was in Mars we got.

All that was altered when Wimp married me. We still do tricks in parlors and at tea-parties, but now we are hon-

ored guests. Many Martian ladies did as Wimp did and married their pet Earthlings. The more muscular of them carried their husbands around in their shopping bags. Can't say I quite liked that. Gave me a nasty feeling that a store for the sale of husbands from Earth might be opened one day. But as long as Wimp is looking after us, any Martian who hurts an Earthling has to answer for it to her.

I don't say there isn't some jealousy about, mind you. Many Martian Princes had been sweet on Wimp. You can't help that sort of thing. Some of them made a lot of trouble. And lately a Space Pirate named Belangor had been sticking his nose into Martian affairs quite a bit.

Not that Wimp worried. She was not the nervous sort. I reckon she must have steel wires for nerves. If no trouble came to her she'd go out and find some. That was Wimp. She was quite capable of going out and hunting Belangor on her own.

It isn't fair really. Nearly worries her father daft sometimes. Me too. But you can't keep a girl like Wimp quiet. She isn't made that way.

Sometimes I don't even know what she's up to till I'm in the middle of it. Like the time she came dashing into our room, barked, "What, haven't you finished dressing yet? Oh, well, no time to finish now. Have to finish on the ship."

I had just time to say, "What ship?" when she picks me up, tucks me under her arm and did one of her elephant charges along the length of the palace corridor.

And me with only half my clothes on in front of all those ladies-in-waiting. But there it is. Because we are so small the Martians seem to think we ought to have no feelings that way. They must think of us as babies.

AND there in the palace yard was a round, glassy traffic sphere waiting, with my shadow at the wheel. That is what I call Vans ever since Wimp appointed him my Official Bodyguard. As though I needed a bodyguard. And one weighing more than a ton, too. Still, I always feel that Wimp is safer with Vans around. Stout fellow, Vans, even if he isn't very quick-witted.

Anyway, Wimp lifts me by the slack of my pants and chucks me in the back, jumps in after me and says, "Get cracking!" to Vans.

Vans grins and starts the sphere.

By that time I knew where I was. Wimp was up to another of her games. She hadn't told me in case I told her father and he put a stop to her foolishness.

So I got up and I said, trying to sound as dry as I felt, "And where is it this time?"

And Wimp looks round and she says, the hussy, "Oh, didn't I tell you? I'm *so* sorry."

And I said, "No, I reckon you must have sort have forgotten to do so," all sarcastic.

And all she did was to tickle me under the ear and say, "Poor little Twiddleums! Was ums little dignity hurt?"

That's the sort of thing I have to put up with.

So, I turned to Vans, and I said, "Perhaps you can tell me where we are going."

He looks at Wimp, and she nods. (I believe they thought I didn't see.) And he says, "We are going to Deimos, Prince."

"Deimos!" I said with a start. "I don't wonder you didn't want your father to know. That's about the most dangerous trick you could get up to. I reckon your dad would have called out the entire army to stop you."

"Just what I was afraid of," she said carelessly.

"What's the attraction on Deimos, anyway?" I asked.

"The pirate ship," says Wimp.

"Meaning the Ace of Spades?" I asked. "The ship of Belangor the Butcher, Venusian Space Pirate which we captured? That crashed."

"It's been repaired now."

"And the men on it?"

"All in my father's jails now. Reached Mars yesterday."

"Do you mean to say," I gasped, "that that beautiful ship has just been left on Deimos without anybody to look after it?"

"Afraid so."

"And what do you aim to do?"

"Go for a run round in it. Isn't it a shame that a lovely ship like that should be doing nothing?"

"Sure it is. But your dad—"

"Oh, him! He'd keep me tied to the end of a piece of string while he always held the other if he had his way."

"He's only looking out for your safety," I said. "All the same I'd enjoy a run in that ship myself."

CHAPTER II

The Emperor in Pursuit

EMPEROR USULOR had a sore head and was making everybody round him pay for it. General Stan Dattease went out of the Emp's room with tears running down his face. It was not usual for Martian generals to walk about crying. But Dattease had an excuse. The Emp had got so excited he had grabbed hold of the general's mustache and nearly pulled it off his lip. "And I'd throw my hand in and tell him to run his own blooming army," the general growled to a friend, "if I didn't know he'd send for me tomorrow and say he didn't mean it and let's be friends and won't I have one of his special drinks with that vitamin in it that his doctors have only just discovered and don't know what it does to you yet?"

Then the Emp found that return number ZK17652/L (in Martian) was not complete. And you should have heard him. But the Secretary of State said the forms were not printed yet. That did it! He called the printers on the teleview and really did let himself go that time. Then the master printer got a word in and said he hadn't got the okay for printing because the Emp hadn't made up his mind whether the form should be diamond shaped or circular or in red ink on green paper or yellow ink on blue paper.

Well, naturally, when the master printer told the Emp he hadn't printed the forms because the Emp himself hadn't given the okay, that made the Emp madder than ever. Because he couldn't chew himself up and pull his own mustache. Not without looking silly, anyway. And that made him like a boiler without a safety-valve. All steam up and nobody to go for sort of style.

And that, naturally, had to be the moment when somebody walks in and says, "Her Highness, Princess Wimpolo, is missing!"

A WEIRD cry rang through the palace, echoing through miles of caverns, the way very loud sounds do in Mars. It was the cry of the lulong or Martian tiger, an enormous and terrible creature, now, luckily, rather rare. Guards snatched up their deathrays. Searchlights were turned on. Parties began to search the palace grounds and all caverns within miles of the Imperial Palace.

Usulor stopped with his mouth open.

"Where did that noise come from?" he demanded.

"I thought it came from somewhere near the Emperor," murmured somebody.

"What nonsense! My voice was drowned by that thing. What useless guards I must have to let such creature get so close to the palace! Why have I nobody but fools and ninnies 'round me?"

But he couldn't stop to explain to the guards exactly what he thought of them just now. He had something that mattered more on his hands.

"Teleview Weil Hektorum," ordered the Emperor.

"Hektorum's office is tuned out of the television circuit," said an official.

"Then use my master key, you tub of grease!"

The teleview caught Hektorum unlucky. His secretary was sitting on his knee. Hek and the secretary both looked up as the sound of the hooting of an owl came from the television screen. And they saw the face of the Emperor.

The secretary, mouth wide open in alarm, jumped off and ran.

"I was just training the girl in the wiles of a secret agent," said Hektorum, who was Chief of Emperor Usulor's Secret Service and the greatest detective on Mars.

"Hrrrmmmph!" said Usulor. At least, he tried to. But at the same moment a roar like that of an angry bear rang through the palace.

"When you have time," said Emperor Usulor, "I'd like you to find out who has turned my palace into a home for wild animals. Every time I open my mouth an owl squawks or a donkey brays. But I've got another job for you now. Wimp has done it again!"

"Oh, my socks!" groaned Hektorum. "Cuss the girl!"

"What did you say?"

"I said that I would carry out Your Excellency's wishes as rapidly as I can."

"See you do. Report to me here at once."

"But look here—"

Emperor Usulor had rung off. Hek sighed and threw a switch.

"Usual," he said to a trusted lieutenant.

"Usual?" repeated the other. "Her again?"

"Right. See to it, will you?"

"Same as before?"

"Right."

"Right."

SO HEK barged off to see old man Usulor, and not any too pleased about it either. And he found Usulor full of excitement.

"She's been traced to an airdrome," he said. "She set off in a small spaceboat. Don and Holors were with her."

"Oh!" said Hek. "Then all you got to do is to send a ship over to Deimos and Phobos, the two tiny moons of Mars, and pick them up."

"Is that where they'll be?"

"Where else in a tub that size?"

"You're right! Hek, you're a man of brains!"

"Quite a simple deduction," said Hek, carelessly. Then, suddenly, "Say!"

"What's biting you now?"

"What happened to that pirate ship? The one Prince Don called the Ace of Spades? That wouldn't be still on Deimos?"

Usulor asked an official who asked another official. At last they made up their minds that since nobody, it seemed, had moved the ship from Deimos, it might quite possibly, be still there.

"Hell!" said Hek. "Then that's

where she's going. And once she gets on that she might go anywhere in it."

Usulor whistled. At least, he tried to, but an owl, hooting loudly at the same moment, drowned the sound. Hek looked closely at him.

"Whistle again," he said.

"No time for fooling," barks Usulor, and grabs hold of Hek by his sleeve and sets off running.

"Why, where are we going?"

"To the airdrome. We got to get to Deimos before my daughter does."

"Oh my socks!" groaned Hektorum, as he was whirled out of the palace, into a traffic sphere, into a space-boat and out into space without a chance to say "Good-bye" to anybody.

They passed Dattease on the way.

"Come along General!" called Usulor.

SO THAT Dattease, his lip still sore, had to pant along behind them.

"Say, where are we going?" the general asked, as they shot out into space and Usulor was out of the way in another cabin.

"On a wild-goose chase, I think," said Hektorum. "Trying to catch up with the madcap of Mars."

"Oh, why must she go to such awkward places?"

"There is some excuse for her," said Hek. "But her father is old enough to know better."

"Too true," sighed the general. "Too true. But I say, I wanted to ask you something. Now I got a chance."

"Go right ahead."

The general looked round anxiously.

"Hektorum, if you were me, would you shave off your mustache, I mean, my mustache?"

"But what for?"

"Then he couldn't pull it."

Hektorum set his great brain working on the problem.

"No, I wouldn't," he said at last.

"But why not?"

"When I was a boy," said Hektorum, "I had a schoolmaster who had lovely, long, sweeping golden mustaches just like yours. For many years the one desire of my life was to take hold of those mustaches and give a good hard pull and then tie them in a knot at the back of his neck. The Emperor does not know it, but when he pulls your mustache he is probably making a boyhood dream come true. If you had no mustaches he'd get another general."

"Perhaps you are right," sighed the general. "But oh, he does make my lip so sore!"

"Do that again," said Hektorum, frowning.

"Do what again?"

"Whatever it was you did then."

"I only sighed."

"Well, sigh again."

The general did.

"Ah, I thought so!"

"You thought what?"

"Did you hear then a curious sound, like a chicken crowing?"

"Why, yes I did."

"Sigh again."

The general did. This time it was quite clear.

"Cock-a-doodle-doo!"

"Well!" said the general. "How did a chicken get on this ship, except in a can?"

"That sound, General," said Hektorum firmly, "came out of you."

CHAPTER III

Misunderstandings

"CATCHING" either Deimos or Phobos, the two moons of Mars, is never an easy job. The two bodies are so small and they go so fast that I can never understand how Earth

astronomers were ever able to see them at all. Even with charts worked out almost to the minute, it takes me all my time to find the one I want. And when I've found it I have to chase it like a long dog after a rabbit. And on a job like that these small space-boats bounce one about more than a bit. Catching Deimos usually gives one a few bruises.

Anyway, we made it.

The "Ace of Spades" lay black and clear among the shiny glass bubbles that the Martians had built on the faces of their two satellites so long ago. All ready to be trumped, I thought. There were some space-suited figures moving about nearby, but we didn't take any notice of them. We just thought that maybe some of the Emp's repair squad were still tinkering around. And we went on down.

And we came out of our boat, Vans in front, Wimp next and me behind. A man who was busy at some job dropped his tools and bounded away in great leaps. On Deimos, with almost no gravity at all, one *can* jump, believe me.

We took no notice of that either. Silly of us. Wherever Princess Wimpolo went on Mars there was always excitement. "Our beautiful Princess, darling of all Mars, today made a surprise visit to—"

Pretty soon we'll see a reception committee, I thought. And there will be speeches and flag-waving. Wish I had stayed on Mars. Public fuss-making always made me tired. Especially when it got to the point where they said, "Perhaps now the Princess's husband, that delightful little man, Prince Don Hargreaves, from our sister world, the Earth, will address us all with a few words. I will pick him up and hold him close to the microphone and viewing screen so that you can all see and hear him." Then I had to smile and be nice though I felt mad enough to bite the announcer who was holding me like a baby in the back of the neck. I always had the idea, somehow, that they were laughing at me.

Well, pretty soon that reception committee came. And came fast. About six of them. With rayguns in their hands, aimed at us.

Such bad manners! I could see Wimp was not pleased.

THEY came on and made a ring round us. Then I saw why we had been received so badly. These men were not Martians but Venusians. Those queer, rubbery men from the planet Venus who can stretch their bodies out to something like ten times the proper length. Now I remembered seeing a curious bubble among the other bubbles that covered the surface of Deimos with pimples. Of course! It was a ship of the Venusian Space Patrol. Still hunting for the pirate Belangor and what was left of his cut-throat crew, most likely.

Of course, the Venusian patrolmen could not be expected to know who we were. I plugged the telephone of my space suit into Wimp's and explained to her. Vans could see for himself.

Only, you see, none of us could talk Venusian. I tried to by signs, but didn't have much luck. They didn't seem to want to be friends. They made sure we had no rayguns, then pointed towards their ship and beckoned.

I would have gone, but not Vans. He stood with his hands on his hips and I could see he was saying, "But I don't want to go that way." The Venusians did not understand. But they understood when he first pointed at our boat and then began to leap towards it.

An elastic arm shot out and held him in mid-air, then pulled him back like a ball on a rubber string.

I saw Vans' face go red. He was asking, "Was that an accident or did you mean to do it?" I could see by his lips.

Nobody answered. Nobody understood but me.

So Vans tries to hop away again, and gets hauled back again.

So Vans turns, slow and quiet. He tries to spit on his hands but can't because of the space-helmet over his head. Then, without seeming at all in a hurry, he hits that Venusian a smacking uppercut.

Now, you can't hurt a Venusian by hitting him. Vans knew that. Punching them is like punching something made of rubber. Your fist sinks in, then rubber straightens itself out again and no harm has been done. Even the gigantic strength of Vans Holors could not hurt them.

I wondered what Vans' idea could be. Then I saw.

The mighty strength of Vans Holors, even on Mars, could throw a Martian hundreds of feet up in the air. Here on Deimos, with almost no gravity at all, he could throw any body to a simply terrific height.

And so I saw. That Venusian just went up and up and up, getting smaller and smaller, till he got so small I lost sight of him, and then there was nothing up there but black space and glittering stars.

Then the other Venusians started to get their rays ready. But they got in each other's way. And Vans was too quick for them. His fists swung and swung. Five more meteorites rushed up from the surface of Deimos. And each one was a Venusian patrolman.

"Come along!" I yelled to Vans, plugging in. "More coming!" Vans stood like a statue, waiting. Then I saw what he was waiting for. One of the Venusians, not hit quite hard enough, was coming down again.

Vans caught him on his fist and mailed him away to some unknown address again . . .

Then we had to hop towards our space-boat mighty quick.

"Vans," I asked, as we got the air-lock shut and blasted off, "did you really have to quarrel with those Venusian patrolmen?"

"Oh, were they patrolmen?" asked the big boob, all surprised. "I thought they were Belangor's stooges!"

"You did, did you?" I said. "You took them for pirates, eh? And now they have taken us for pirates too."

Below us the Venus patrol ship was getting ready to blast off in pursuit. Patrolmen were racing to get through the air-locks before the ship started.

"They can't start till everybody is aboard," I said. "Then they will have to check-up. Some men will be sure to be a long way away and late in seeing the recall signal." (The signal was winking away redly on top of the Venusian ship.) "That means we have plenty of time. Once that ship starts, though, it will soon catch us. We must hide."

"Hide?" snapped Wimp. "Are you gone daft? Where can we hide in space?"

"On the other side of Deimos we can," I said.

* * *

EMPEROR USULOR pointed at the tiny image of Deimos on the telescopic screen and said, with an air of importance, "Cock-a-doodle-doo!"

They had been hunting for the tiny world for two days, and the animal sounds that so often and so rudely interrupted the Emp had got worse and worse. The general was suffering nearly as badly.

"Oh, exactly," said Weil Hektorum. "In fact, bow-wow, hee-haw and meiaw."

He was getting tired of listening to animal sounds. And now that he tried to imitate them he did it very much better then he expected to.

The Emperor went red.

"Machalorum! Cockalorum! Too-whit Too-who!"

"Well," said Hek, "that last was an owl. The other two have me beat. Still, I can answer. Cuckle-cuckle! Twit-t w i t! Warble-warble. Cluck-cluck. Twitter-itter-itter-itter. The song of the nightingale," he explained proudly. (He really named a Martian bird that sings very sweetly. I always think of it as the Martian nightingale.)

"Mackafoo! Mackafoo!" bellowed the Emp, furiously.

Then the general came in.

"To-whee! To-whee! To-whee!" he sang sweetly. "Barny, barny, barny, come, come, come!"

And added the cries of still more animals and birds.

"What is this?" asked Hek, impatiently. "Can't either of you talk sensibly just for a little while?"

"Twiddle-iddle whampee whampee?" inquired the general patiently.

"Gruna-gruna! B o l a b - b o l a b!" snapped Usulor, impatiently.

"This gets worse," groaned Hek to himself. "Can't get any sense out of these fellows at all. Won't they talk like humans or *can't* they?"

He wrote on paper, "What's gone wrong? Neither of you two has spoken like a man for more than a day. All I can get out of either of you are bird and animal noises."

Usulor and the general read and looked furious.

"Wangee wangee!" roared the Emp. "Groballa groballa!"

"Kalangee, kalangee!" whistled the general.

"Hopeless," sighed Hek. Then, desperately wrote again on his paper. "If you *are* trying to talk, then for the love of Mike write it down."

Usulor read, and wrote: "What the blazes is wrong with you? It's you two who are filling the boat with silly imitations of animal noises. For the love of Pete drop this silly game and be sensible. I've had enough of it."

And the general wrote: "What are you two trying to do? No matter what I ask you all I get back are queer noises. If it is a game it has gone on too long to be funny."

HEK read them both. The great brain was working.

Then he wrote: "Does my voice, too, sound to you like animal noises?"

Both of the others nodded quickly.

"Then, gentlemen, we are all suffering from a curious affliction. Our voices are gone! Our voices sound all right to ourselves, but really they are strange sounds such as we have all been listening to from the others. From now on whatever we want to tell one another we must write it down."

"Do you mean to tell me," wrote Usulor, "that I too have been behaving as daft as you two?"

"And me too?" wrote the general.

"You have," wrote Hektorum. "But from now on don't talk too much or we shall run short of paper."

"Barney, barney, tooral!" said the Emp. What he meant was, "And get writer's cramp too."

And then the radio joined in the argument.

"Ahoy there, Martian space-boat! Who are you? Answer or we fire!"

CHAPTER IV

A Surprising Visitor

IN THE other boat Vans and Wimp and I were in a hurry to get away

from those Venusian patrolmen. Because when they caught up with us they would not be pleased with us for the way Vans had pushed six of them off Deimos into space. Most likely they'd shoot first and ask questions after.

"Hide on the other side of Deimos?" asked Vans.

"Yes, that's my idea," I said.

Vans gave a funny sort of snort.

"Well, what would you do? Where would you go? Do you know a better 'ole?" I asked him.

"No, I don't," he said. "But that one ain't much good."

"Why not?"

"Because of those fellows."

He pointed out of a window.

Out there we could see three of the men that Vans had sent on such unusual high jumps. They were circling round Deimos in various irregular orbits. One shook his fist at us as he floated helplessly by. Another aimed a raygun, but was too far away to hurt.

"I see what you mean," I said. "Those guys will see where we go and tell their pals."

"Got through that thick skull of yours, has it?" asked Vans.

"Well, what would you do?"

"Capture one of those fellows out there. Make him tell his pals on the radio who we are."

Which was plain common-sense. Queer how the most sensible thing to do is usually the last you think of. None of us could speak Venusian. Therefore, we must capture a prisoner and make him an interpreter. Easy! We hoped!

So Vans, in his space-suit, stood in the airlock, a long rope with a noose at the end in his hands. The idea was to lasso a Venus patrolman as he drifted by. But lassoing an object in airless space is not easy. Your noose just goes right on past the object instead of falling on to it. Vans missed every time.

"That stunt's no good." I told Vans. "No use trying to loop them in. Have to fish for them."

"Yeah? And what bait will you use?" he asked.

"I shan't hook them, you dumb hippo," I said. "Hooks would tear through the rubber of their suits, let the air out and kill them."

"And what will you do?"

"If you would only help me with this big electro-magnet I wouldn't be long," I said.

He got the idea at once. Soon we had that electro-magnet on a rope and threw it carefully towards the first floating figure. We missed the first shot. There was not a lot of iron about those suits, and the magnet had to go close to them to take hold. We kept throwing.

"A bite!" said Vans at last. We hauled carefully on the rope.

It was a man in a stiff, all metal suit that we had caught. Smaller than the other Venusians. And the nearer we got him the more sure I was that he was not one of the patrolmen that Vans had knocked off Deimos.

I told Vans so.

"A sergeant or captain or something sent out to fetch them in," he said, still hauling.

THE man, if man it was, turned and looked at us. Instead of a glass helmet he had a metal head with eyeholes. Something or other in his right hand he kept pointed at us while he hauled himself towards us along the rope.

We stopped hauling. There was no need. Our fish was landing himself. Trouble was, I was not quite sure whether we had caught the fish or whether the fish had caught us.

Then he reached us.

"Lumme! Stuff me for a pickled pole-cat!" I gasped. "If it ain't Adam Link!"

"Jumping jam-jars!" said Vans. "A tin man!"

It was, in fact, a perfect robot. By robot I mean a machine that looks like a man. An imitation man made out of metal, wires, wheels and so on, with a brain of its own. I never saw much sense in robots myself. Why make imitation men when Nature has already made lots of men much better than your imitation men are ever likely to be?

Anyway, when you meet a robot in the flesh, I mean, in actual fact, the look of him don't taste nice, in a manner of speaking. Sends nasty shivers up and down your spine. Because a robot don't have no way of showing his feelings. He looks at you. He might be just going to ask you to have a drink, or he might be about to sing a song, or he might be just planning to murder you. You can't tell. You can't tell whether he's mad or happy. He's more pokerfaced than a poker, more inscrutable than a Chinese Mandarin is supposed to be, or was supposed to was before the Japs started to show hom inscrutable they could could be, all beaming smiles till they suddenly whip out a dagger and stab you in the back.

Anyway, you see what I mean. You are never sure you can trust a robot. I don't wonder Adam Link couldn't get himself accepted as a human. There ain't no feeling of companionship about a robot's company.

Anyhow, this particular tin man nods his head at the door of the airlock and points. He wanted to go inside. He might have been asking us nicely to let him in or he might have been giving orders. You couldn't tell.

Anyway, in we all went.

Wimp's eyes bulge, and she says, "Who's your friend?"

"A visitor from another world," said the robot, in Martian.

It made me jump to hear him speak, although of course I should have expected it. The voice was dry, whirring, metallic, with a sound like a scraping phonograph needle in it. Just what you would expect.

"Look here," I said, "are you Adam Link?"

"How did you know?" whirred the robot.

"I've read all about you," I said. "You have no business to be here. I've a good mind to tell Mr. Binder!"

"Pfff! Him!" said Adam.

"I think you are disrespectful to a very clever and popular author!" I said.

"And so what?" asked Adam, casually sucking down electricity from our batteries and blowing out a cloud of sparks.

"It's my opinion, Adam," I went on firmly, "that you are a rogue at heart, and so cunning that you have even fooled your creator!"

"My creator!" repeated Adam. "Go on. You are quite amusing."

"You two seem to be old friends," said Wimp, coldly. "When you have a moment to spare you might tell us about it. And what you might do about those Venusians."

ADAM and I had been talking in English, which of course she and Vans do not understand.

"Sorry," I said. "This tin man is from Earth. His name is Adam Link. The fact that he can talk English proves it."

"Absolutely," said the robot. "Who can talk English except Adam Link? If you could talk English you would be Adam Link. According to him."

I don't like sarcasm, especially from a tin man.

"How did you get here?" I asked.

"Easy. Robots don't have to have air. All I needed to get here was a good rocket motor, a device for turning the

energy of the sun's rays into current and a warm coat of paint."

"And can you help us against those fellows down there?"

"They out to get you?"

"Yes."

He looked.

"The easiest way would be to take Deimos in one hand and the rocket-ship in the other and bang them together."

"Yes, of course, Adam," I said hastily. "I might have known you would get out of the jam some way like that. But we don't want to hurt those fellows. They're our friends really."

"Making things awkward, aren't you?" asked Adam. "Then you'll have to hide."

"We thought of that," I said. And explained about those Venus patrolmen that Vans had set so untidily sprawling all over the space around Deimos.

"Is that all that's troubling you? asked Adam. "Give me six paper bags full of paint."

It seemed funny, but we did. And Adam, when the first Venus patrolman floated past, carefully threw the paper bag. It was a perfect shot. Adam's mechanical brain had calculated perfectly. The bag hit the Venusian full in the face, and burst. Very soon all the human satellites of Deimos were blinded with paint.

"Beautiful work!" I said to Adam, as he came in.

"Would have been," he said. "If I had not missed with one bag and it hit the door and burst and covered me with paint. But one of your patrolmen had drifted back to Deimos, so that I had enough bags all the same."

By now the rocket-motors of the Venus ship were heating up, so that we hadn't much time. We slipped round to the other side of Deimos, took our little space-boat into the air-lock of a large bubble and sank her in the lake.

It seemed odd to be pushing around so easily an object weighing quite a few tons, but in the gravity of Deimos it was quite easy.

CHAPTER V

Paint and Pirates

AND while all this was going on W'mp's poppa wasn't having such a good time either. To start with, Hek and him and the General had clean lost their voices and could only roar like lions or growl like bears or scream like parrots or make other noises that you don't expect from a reasonable human unless he's on the stage or broadcasting or amusing a kid's tea-party or in some other place where people can let themselves go without getting locked up for it. For myself, when I first came to the Imperial Palace of Mars I carefully learned the cries of some of the more deadly of the giant Martian beasts and snakes. I used to practise them sometimes in the Palace grounds. It amused Wimp. Especially when her ladies-in-waiting all ran for their lives. But when the guard turned out and turned on the big searchlights and started sweeping the place with deathrays she made me stop it.

But it was not funny to Emperor Usulor. I suppose an Emperor has to look dignified and not be laughed at. I don't know why. And he was very worried. Suppose this whatever it was, that had happened to him, did not wear off! He'd have to go back to Mars and lay foundation stones and attend dinners and inspect his troops and pin medals on generals and not be able to say a word. He wouldn't be able to make speeches. The Emp loved making speeches. More than people loved listening to them. Now he would have to wear a bandage round his neck and

say he had a sore throat. Even so the rumor would get around and he'd be laughed at. Horrible to think of!

Still, perhaps it would wear off.

True, the same thing had happened to Detective Hektorum and General Dattease. That didn't matter. No trouble to get a new detective and a new general. Retire these two with fat pensions. And medals. "For disabilities suffered in defense of the person of the Emperor." That would sound good. But what the Emperor didn't like was the idea of retiring the Emperor on pension and getting a new Emperor. It's funny. Kings and Emperors say they have such hard times. Speeches to make, foundation stones to lay, luncheons to eat, medals to pin on generals. Yet they seem to get a lot of fun out of it. I never knew one that didn't want to go on playing to the last possible moment.

Anyway, like most Emperors, the Emperor of Mars wanted to go on batting as long as he could. Even if his speeches on the radio did send people to sleep better han any doctor could. And it looked as though this might end his innings. You could have an Emperor with only one leg, or only one arm, or only with one eye. Or even, a blind Emperor. Mad Emperors are so common that nobody notices it.

But an Emperor without a voice! Pfffffff!

And while old man Usulor was worrying himself bald like this the radio crackled out the words I told you about.

"Ahoy there, Martian spaceboat! Who are you? Answer or we fire!"

It was taking an unfair advantage. Emperor Usulor could not answer. Nor could Hek or Dattease. They just looked at the radio with their mouths open.

Hektorum pointed to the view of Deimos on the screen before them. Near the speckled black outline of the pirate's old ship, the Ace of Spades, was another ace, the Ace of Hearts. An orange vessel of the Venusian pirate-chasing fleet.

"Baroo, Baroo! Bump! Weezor!" shouted Usulor.

Hek understood that one. It was easy. Usulor was saying "They can't do this to the Emperor of Mars!" or something like that.

"And how are you going to tell them who you are?" Hek asked.

"We don't know what your game is," barked the radio. "We give you ten seconds to answer properly. Funny noises will not help you."

Looks nasty, Hek thought. He got out three space-suits, put one on and made the others understand they must do the same.

THEN they looked at the screen again. No time to waste! A radio-controlled rocket shell was streaming at them. A few more seconds and their boat would be blown to pieces.

They didn't wait to go through the air-lock. They broke the big observation window, jumped into the the hole and kicked the space-boat away from them as hard as they could kick.

Then that shell reached that boat and went off, and what was left of the boat wasn't much use to anybody.

If they had been on the ground Usulor, Hek and the general would have been blown up too. In space it was different. The blast spent itself in the vacuum. There was no air to carry sound. All they noticed was a cloud of smoke that spread outwards and made everything dark. Luckily, none of the bits of the space-boat, spreading out all ways, hit them.

It was minutes before the smoke thinned out well enough for old Usulor to see about him. The boat was gone.

He had expected that. Hek and the general were nearby. Deimos was near. The three of them were still traveling towards it with the velocity of the boat that now was no more. Blown to bits, the boat was still doing its job of getting them to Deimos.

On Deimos itself the Ace of Spades and the Ace of Hearts lay close together among the glass bubbles. There were other figures in space-suits floating about in space too. He saw two hauled down onto Deimos with magnets on ropes.

Deimos seemed to be turning under him. He was floating in an orbit round it. Then he saw another space-boat. It seemed to be hiding from the Ace of Spades and the Ace of Hearts by keeping on the other side of Deimos.

It looked rather like the spaceboat that Princess Wimpolo had gone on her madcap adventure in. He wished he could speak to it. He tried waving his arms.

Someone stood in the open air-lock of the boat. A man about the size of an Earthling, dressed in an all-metal space-suit. Funny. Another thing he could not understand. He wished he could ask Weil Hektorum about it.

He could see Hektorum, rising like another sun above the horizon of Deimos. The general was at the zenith, arms and legs spread out as though he too was pretending to be the sun.

"Oh, no, no, no! shouted Emp Usulor.

The man in iron clothes had something in his hand, and was taking aim at the general. Something flew. It hit the general full in the head.

Usulor expected to see the general blown to bits. There was a great splash of red. Usulor, horrified as he was, thought that the unlucky general's head had a surprisingly large amount of blood in it.

The general was still kicking. He tried to wipe his helmet plate. Just as though he was still alive.

Then the Emperor saw that he *was* still alive. The red stuff was not blood but only paint.

"Oh, no, no, no, no!" he shouted. "Don't you dare!"

For the man in metal clothes was now aiming at Usulor. But the missile came on. Nothing could stop it.

All at once the entire universe turned green. Bright green. A bag of green paint had struck his space-helmet, covering it. A green sun shone through a green ocean. He could see nothing else. No more Deimos, no more space-boat or iron man. No more Hektorum, rising like the sun. No more Aces of any suit.

FOR some time Emperor Usulor went on floating in space, trying to wipe the paint off his space helmet. He didn't get very far at the job. The hands of his space-suit were not made for a job like that.

At last he felt something pulling him along. What it was of course he didn't know. Then he struck against something, but not hard, and felt hands take hold of his suit. Men were talking in Venusian. Then someone spoke in Martian.

"Who are you? What are you doing here?"

"I might ask you that," he barked, or thought he did. "Why did you shell my boat?"

Squeaks and squawks of amazement from the Venusians.

"Say!" snapped the Martian voice. "Snap out of it! Making those queer noises like you did over the radio won't get you any place."

Usulor had forgotten that his voice had gone, queer animal noises taking its place.

Hands began to take off his helmet.

Two men were arguing in Martian.

"What I want to know is, if the party we shelled is the same one as the one that knocked our men off Deimos, how did this guy get the paint on him? I reckon there is another boat about somewhere."

"Yes, maybe. But who is this guy that can't talk like a man?"

"Dunno. I thought his boat looked like a Martian boat, but I'm not sure. We haven't seen enough Martian boats to be certain."

"You think this guy ain't at Martian? He certainly ain't a Venusian. And he's much too big for an Earthling. I can't place him yet."

"I ain't heard of any other inhabited planet."

"There may be one all the same. Mercury perhaps."

Then Usulor's helmet came off. The paint had made it stick.

Around him were Venusians and Martians. He had expected to see Venusians only, if this was a Venusian space patrol. And only a few of the Venusians were in uniform. General Dattease was here too, and he tried to tell the Emp how pleased he was to see him unharmed, but all he could get out of him were roarings and whistlings.

"It's right enough, Belangor," said the man. "These guys can't talk like Martians or Venusians or Earthlings. They must be from another planet."

Usulor and the general stiffened at the name. Belangor the space-pirate! With a ship disguised as a Venusian patrol ship and some of his men in captured uniforms!

"Sure they are not stalling?" Belangor asked.

"Certain."

"Find out where they do come from then. Maybe we could do business with this new planet, now that pesky Venus Patrol has made things so hot in this quarter."

Belangor was planning to do some pirating in new fields.

A chart of the Solar System was brought, showing all the planets and asteroids. Belangor pointed to himself, then to Mars. He pointed to one of his Venusians, and then to Venus. Then he pointed at Usulor himself, and handed him the pointer.

Usulor thought, then pointed to one of the satellites of Jupiter.

Belangor whistled.

"Ganymede! They come from Ganymede! And a rich world it must be, judging by this guy's clothes. Ought to be good plunder there. And now I've got my Ace of Spades ship back again. Boys! Get everything ready. We are off to give Ganymede the once-over."

"And what about the other boat?" his lieutenant asked.

"Was there another boat?"

"Well, somebody must have thrown the paint at these two guys. There were three people who landed on Deimos. One was a little guy from Earth. One, the men think, was a woman. And the other was a big fellow, much bigger than either of these two. Where have they gone?"

"Did you see anything of them in your search in the other ship?"

"No, but—"

"Then forget them. We blast for Ganymede."

CHAPTER VI

Wimpolo in Pursuit

WEIL HEKTORUM saw General Dattease splashed with red paint. Then he saw the Emp blotted out with a great splash of green. And all the while, whether he wanted to or not, he was coming closer to this crazy tin man

whose one idea seemed to be to brighten up the Solar System by throwing paint around.

He saw that the space-boat was the one Wimp had been using, but that did not help him any.

Now the tin man was aiming again, and aiming with a certainty than an ordinary human brain could not equal. Hek realized that he was going to get painted, whether he wanted painting or not.

Plonk! The universe turned blue. But not before Hek had put both hands in front of his face. When he took his hands away he was able to see quite well.

The space boat landed, and the four people in it, counting the robot, tucked it away out of sight in one of the glass air and heat traps of Deimos.

Good. Now to get down to them. And I hope I don't get greeted with more paint, Hek thought.

But how to get down? Well, action and reaction are equal and opposite. His space-suit was made for repair work on the outside of space-ships. It had tools. Spanners, screw-drivers, a hammer and wirecutters. If he pulled them out and threw them with all his strength in front of him the recoil ought to check his orbital speed and allow him to land.

It did. He got his feet on the top of one of the bubbles, skated over it and landed on the far side on the ground, rolling over and over.

Now he was nearly as badly off as ever. Because, in rolling over the paint on the top of his helmet got disturbed and ran all over his face-plate. He was as blind as Usulor and the General had been.

But he had been seen. Presently something jabbed in his back. A plug was pushed into the plug-hole of his space-suit telephone, and a voice said. "Don't try anything."

"Vans Holors!" Hek exclaimed delighted.

"I don't know what your idea is," Holors growled. "This is not the place for animal imitation."

By now I had wiped some of the paint off Hek's face-plate and saw who he was.

"It's your father's Secret Service man," I told Wimp.

"Then why can't he talk sense?"

We got Hek into one of the glass bubbles, got his helmet off, and he wrote on paper what had happened to him.

"Just like my dad," said Wimp. "The hot headed old fool is sure to get into trouble if I'm not there to look after him. As though I wasn't safe enough, with my husband and the wrestling champ of Mars to look after me. What more does he want? Must I cart a whole army around with me wherever I go?"

"Maybe," wrote Hek, "your dad was glad of an excuse for a bit of fun himself. A day or so off from the affairs of state sort of thing."

"Of course he was. Think I don't know my dad? Well, he got more fun than he expected. Serve the old blatherskite right," said this undutiful daughter. "Perhaps after this he'll let me run around without trying to keep me tied to his apron strings."

"And what are we going to do now?"

"Oh, hang about here awhile I suppose. Till those Venus patrol guys have sent my dad home with apologies, as they will when they know who he is. Then we slip out and dive for home too. All my plans for a run round in the Ace of Spades are off. I can't let my dad find out we threw the paint at him."

SO WE waited. And at last we saw those ships blast off.

"That leaves the coast clear for us," Wimp said.

Then Hektorum wrote something in a hurry.

"Those ships are not headed for Mars," he said.

"No," said the robot. "By their course I would say they were making for somewhere much farther out. Jupiter, unless I am mistaken."

Adam Link had performed a whole series of elaborate figureworks in his head in a few seconds.

"I don't understand," Wimp said.

"I think I do," said Hek. "Suppose those men were not Venus space-cops, as they pretended to be!"

"What?"

"Suppose they were somebody else, disguised, and now have Emperor Usulor in their power!"

"Get Mars at once on the radio on a tight beam," snaps Wimp.

We did, and Wimp demands to speak to high officials at once.

No, Emperor Usulor had not returned to Mars. Neither could the astronomers with their telescopes see any sign of the rocket-blasts of a space-boat taking him back.

"Attention everybody," snaps Wimp. "I have reason to think that my much-loved father has been abducted. The kidnapers, who are disguised as space-cops from Venus, are in two ships. One of those ships is the former pirate-ship, the Ace of Spades. The other looks like a Venus patrol vessel. The two ships are now headed Jupiterward with the Emperor and General Dattease apparently prisoners on board. I am following in a space-boat since the ships cannot be allowed to get out of sight. Every space-ship on Mars that can take off must follow me. Call Venus and get all the help you can."

* * *

IT HAD been a sudden idea to Emporor Usulor to pretend that the general and he came from Ganymede. To say who he really was would have meant being held to ransom for some enormous amount. He didn't want that. It would mean Belangor scoring a big success and, with the money he would get, going in for piracy and murder in a much bigger way. If he admitted they were Martians but not of enough account to be worth a ransom they would have been flung into space to die, two more of Belangor's countless victims.

Belangor, smooth butcher with a smile, was not going to score him if he could help it. So, he told the only other story he could think of, and one that might lead to anything. Usulor, noisy blusterer as he was sometimes, was no coward.

"The Ganymedans," said Belangor, "must be well treated. We must make them tell us where the riches of Ganymede are and whether there are any patrol fleets or space navies to watch for. Ask about the land defenses of Ganymede. What do they use for money. Gold, radium, energy units, platinum or what-not. Are any other satellites of Jupiter inhabited. And so on."

"Aren't you going a bit fast?" asked his lieutenant.

"How?"

"Those guys can't even talk like men."

"Then get someone to learn their language. Go easy as first. Treat 'em good. Pretend we are taking them back home. Later, if they get shy and don't talk plenty, we can turn on the heat. When we've found out all we need, get rid of them."

"Call that a language," growled the lieutenant. "Sounds like a home for wild animals at feeding-time."

"Do it, I say. But go easy at first. Pretend to be their long lost daddies. Now, I'm taking them to my cabin for a real slap-up feed. Bring the officers."

"All of them?"

"Yes. And see they know their parts. See they smile nicely at our guests. If they have forgotten how to, tell them to practice in front of a glass. Get cracking."

Usulor and the general listened to all this, keeping their faces as blank as two turnips. They were not supposed to know what was being talked about.

Then Belangor, with a bow and a smile, made signs that they should follow him. Neither Usulor nor the general found it easy to smile back innocently at the slimy reptile, but they made it, good enough to pass, anyhow.

Then the two "Ganymedans" had a real tasty feed. The pirate officers were very polite, pushing more and more food at the guests and nearly fighting for the right to fill their glasses.

Then Belangor made a speech. He explained his plans.

"If they won't talk we'll make them talk," he said. "Breaking their finger-joints and a few other tricks." As he said it he bowed and smiled, and all the company bowed and smiled. "So that, either way, it's a one way trip for them."

Amid a burst of applause, bowing, smiling and banging of plates on the table, he sat down.

Then General Dattease rose to reply. Naturally, it sounded like the roaring of lions, the bellowing of bulls and the squawking of parrots. But suddenly, Emperor Usulor caught words. Words nearly drowned in the flood of other noises.

"Rip your lousy throats from ear to ear. Wuff, wuff! Squawk, squawk! Gouge out both your eyes with my own thumbs."

The general's voice was beginning to come back. And he did not know it. Usulor wondered whether any of the pirate officers could hear. They would not be listening so carefully as he was.

The Emp of Mars began banging a plate on the table in applause. Might stop the others hearing, he thought.

All the same, he was glad when somebody came in and said, "Captain Belangor! There is something in the viewing plate we think you ought to see. Looks like we are being followed."

"Followed?"

"Venus space-cops!"

"Let me see!"

"Bet you it's only a meteor."

They all piled out, leaving the food and drinks.

USULOR wrote on a piece of paper, "Your voice is coming back. Be careful," and handed it to the general. The general read. Then Usulor burned the paper and crumbled the ashes.

Then, from sheer habit, he took out his vitamin tablets. Most people in Mars take vitamin tablets with their meals. Without them nobody could live long in a sunless underground world.

The general began to shake his head quickly and point to his throat.

"What?" asked the Emperor, puzzled.

Then he got it.

The general was trying to say that it was the new vitamin that had made their voices go funny.

"Nonsense!" thought Usulor. How could a vitamin do that?

And while he was wondering General Dattease took the whole bottle of tablets of the new vitamin and emptied it into the big whiskey bottle on the table.

Then Belangor and his officers came back.

"Never saw anything like it before," one was saying.

"Such a tiny boat following us," said another.

"I reckon it can't be much bigger than an ordinary space-lifeboat."

"Must be mad."

"Tired of life I reckon."

Belangor came in.

"What are we going to do?" one asked him.

"Nothing yet," said Belangor.

"But—!"

"When we get a chance to kill some of them Venusians—"

"I wouldn't let them go."

"They may not be Venusians," said Belangor. "In any case, we can't kill them yet."

"Why not?"

"They are so far away that we can only just see the tiny glow of their rocket-jets in the screen. As soon as they saw a radio-controlled rocket-shell coming at them they would turn off their rockets and we would not be able to see them. No. Let them come on. You are not afraid of such a small boat, are you?"

"Can't we put on more power and lose them?"

"Not so easy. Our rocket-jets can be seen an enormous distance away. I'll arrange a trap for them to fall in. Now, gentlemen, a tot of whiskey to all before we go back to our jobs."

CHAPTER VII

The General and the Germ

SEVERAL hours later, the officer of the watch decided that the ship was veering a little off course. He rang the intercommunication phone.

"Woof! Woof! Baroo! Baroo!" he barked at the man who answered. And rang off, thinking he had given quite a clear order.

The man turned to his buddy.

"What's the major playing at? Hear that noise he made?"

"Sure I heard it. Loud enough, wasn't it?"

"What do you make of it?"

"Too much whiskey I suppose."

Presently the major noticed that his order had not been obeyed. He rang again.

"Wallawalloo!" he shouted, furiously.

"Sure, sure!" was the soothing answer. "We'll see to it."

"And what do you make of *that?*" the man asked the buddy.

"Search me," said the buddy. "Didn't seem drunk. I hear the boss wants someone to learn the language of the Ganymedans, but I didn't know they'd practice on us."

Then the major rang again. He was real mad this time.

"Oroof, aroof! Whee, whee, whee, walla!" he roared.

"Sure," was the answer. "And a wang, wang, tiddly pom-pom!"

That made the balloon go up. Because, although the strange vitamin the major had taken had altered his voice he didn't know it. He though his voice was still okay. But his ears were not changed. He heard what the other people said all right.

He slammed down the instrument and charged out.

"You seemed to have stepped on his corns," said the buddy. "He's coming to roast you."

"If you ask me, the major has gone nuts," said the other. "We can't handle this. I'll call the boys."

So that when the major got there a dozen of the crew, just woke up out of sleep, were waiting for him. The major pointed at the first man and bellowed, "Scree! Scree! Bruahhh! Womwom!"

He was saying, "Lock that man in the cells!" Or thought he was.

"Would you mind saying that again, sir?" asked one man.

The major did.

"It's right!"

"The major's nuts!"

"Put him away and call the colonel."

"Lock him up before he does any harm."

A dozen pair of arms took hold of the angry major.

"Help! Help! Mutiny!" he screamed with all his strength. It did not sound like that.

A jangling bell woke the colonel. With a grunt, he took the instrument, and squawked into it like a drunken peacock.

"The colonel too!"

"What's got loose here?"

"After him, boys!"

The colonel's door flew open, and very soon he was helpless, his arms handcuffed behind him, and flung into a cabin beside the major. The two officers tried to ask each other what was wrong, but soon gave up. Each thought the other mad.

But before the colonel was carried off he managed to set off a secret alarm bell that rang in every officer's cabin on the ship.

"GENERAL alarm! Mutiny!" was the message that pulled every pirate officer, from Belangor to the newest lance-jack, out of bed.

Belangor was awake in an instant. Mutiny, huh? A nuisance that. It was not easy to get reliable new crews. But he would deal with these mutineers in a way that would not be forgotten. Future crews would not mutiny against him in a hurry.

His secret teleview showed him the crew rousing one another. They were carrying their deathrays. He saw one officer come out of a cabin and wave his arms. He seemed to be ordering the men back to their posts. If Belangor's spying television had had a microphone to it he would have thought the officer's voice sounded strange, like the gibbering of monkeys and the braying of donkeys. But it didn't have a microphone to it.

He saw the crew leap on the third mad officer, as they thought, from behind, and carry him off.

"All right," thought the pirate chief. "I'm ready."

Many steps sounded in the passage. Someone knocked.

"Chief! Wake up! Let us in. We have an urgent report to make. A vital matter urgently affecting the safety of the ship."

Oh, yeah? thought Belangor. Do they think they can fool me with that old trick? Once in here they will leap upon me, as they did upon the others.

He pressed a switch.

A hidden deathray swept the corridor. The men in it all fell where they had been standing, without a sound.

Smiling grimly, Belangor came out. A nice collection of dead bodies. This would add to his reputation for terrorism, even if the dead men did have to be replaced. Teach 'em to defy Belangor the Butcher. Or even to think about doing so.

He climbed over the bodies and went to the door of the nearest officer and knocked. The man inside thought it might be mutineers knocking, and called nervously, "Who is there?" Or thought he did. Actually, he made a good imitation of the bray of a donkey.

"It is I, Belangor," called the pirate chief. Or thought he did. What it sounded like inside I don't know. The startled man inside at once played his deathray on the voice through the door. The pirate chief's right arm fell useless to his side as the ray struck it. He fired back, using his left arm, and heard a body fall to the floor inside the cabin.

"Some of my officers on the side of the mutineers, eh?" Belangor thought.

"Nearly got me, too."

Then three other doors opened at once and three officers came out. At once they began to talk in animal voices.

"Either this is a plot against me or they are mad," Belangor thought. "Mad officers are no use to me." And he turned his ray on them. The three were just wondering what had happened to one another. They were not looking for an attack in the flank from their boss. They just laid down on the floor like tired men.

He wished he knew what was happening. He could hear running, shouting, animal noises, fighting and falling bodies. He listened for the sound of the voice of an officer, any officer, whom he knew. He did not hear one.

All at once he felt lost and frightened. He ran back to his cabin and turned to his spying television.

Wild confusion. Officers being attacked everywhere. Some fighting each other. No two officers together. No sense, reason, or order to anything.

Another group of men came towards his own cabin, but turned back, alarmed, when they saw the bodies of the first lot.

Belangor locked and barred his door in a hurry. It was built to stand a siege. And the cabin had a secret catwalk to a lifeboat.

USULOR and General Dattease looked at each other as the noise and excitement went on around them.

"I seem to have set things moving out there," Dattease said. His voice was nearly normal once more.

Usulor nodded. His voice was not.

"When they find out the trick we've played they may make it nasty for us. Still, we have to take chances in war. That right, Your Excellency?" said Dattease.

Usulor patted his shoulder.

"Whatever comes we face it together," he wanted to say. But couldn't.

"Here it comes," said the general at last.

The door opened. Several grim men were out there, men with torn clothes and blood on their faces.

"Here you, you Ganymedans," said one. "You started this business. This animal voices business. Some of us think it would be best to get rid of you. Before you start any more trouble. What's the meaning of it all? What have you done to our officers? Explain or we make an end of you."

Their fingers played on the switches of their deathrays.

"Shucks!" said the general. "I can explain."

"Found your voice, eh? Well, get on with it."

"It's a germ, a disease," explained Dattease. "My buddy and I were suffering from it, and your officers must have caught it."

"That's it, is it? We understand. But say! Are we likely to catch it?"

"Oh, no. I should not worry about that. If you have not come into contact with any sufferers you are almost sure to be all right."

"But we have. All of us have. Threw our arms round them from behind and carried them."

"Did you really? That was foolish of you. My word! H'mmm! Well, that is awkward."

"Look here," drawled somebody. "Is this disease real bad. If we get it won't we get over it?"

"Oh yes, quite a number of you will get over it with luck. Doctors reckon that one out of every three sufferers gets better if he is carefully nursed and not allowed to get out of his bed on any account whatever. Some of them can even get out of their wheel-chairs after

about ten years and walk about on crutches."

"Crutches!"

"Oh, I'm so sorry. I should not have told you that. That's only worrying you needlessly. That's a long way off. You'll be quite happy, most of you, for several days. Even after you lose your voices it will be days before the disease reaches your brains and you go mad."

"Say! You got over it! And you are not on crutches. How come?"

"Oh, we had the cure."

"Then give it to us. Quick!"

"Sorry. It's all gone."

"Then tell us where to get it. Or else."

"Sure! I can take you to a hospital on Mars where—"

"On Mars! But they'd roast us all if we set foot on Mars."

"They won't," said General Dattease, taking a big chance. "This is Emperor Usulor, Overlord of all Mars. See these papers proving it. See that photo?"

"Yes, that's right."

"Thought I knew him all along."

"What did I tell you?"

"Emperor Usulor," asked Dattease. "If these men all promise to give up pirating and surrender, will you promise for your part to receive them, cure their illness, pardon them and set them up in jobs or farms in your lands in Mars? Most of them would have given up this robbery and murder long ago if Belangor did not have them by the throat."

Emperor Usulor wrote that he would, but only the crew. The officers must be handed over to justice.

And the pirate ship returned to Mars, Dattease at the controls and Usulor at the radio.

"GENERAL," said Emperor Usulor, after, "I have much to thank you for. But for you I might have had trouble in handling that matter."

"Possibly," said the general.

"How can I reward you? You already hold every medal there is."

"Oh, I don't want a medal."

"What do you want?"

"I want a promise."

"A promise? What for?"

"A promise that you will not pull my mustache again."

Usulor blinked.

"Oh, but really! Do you object to that? A little harmless fun—"

"If you tried it you would not think so."

"But really! Well I *will* try it. You pull *my* mustache," said Usulor, boldly.

"Do you mean it?" Dattease could hardly believe it.

"Sure."

"And you won't do anything about it?"

"Of course not."

With a gleam of happiness in his eye, the general took hold of the Emperor's mustache. And he pulled. He put a lot of painful memories into that pull. He might have been training for a tug-of-war match. Usulor was pulled right off his feet and clutched the general's middle to save himself.

"My word, Dattease," as he wiped the tears from his eyes, "I had no idea how it hurt. From now on I promise. No more mustache-pulling."

AS THE general went away, as happy as a schoolboy, Usulor turned to Adam Link. All this time poor Adam had been standing quite still, waiting for somebody to speak to him.

"Thank you for your help, robot. When will you be going back to Earth?"

"You want to get rid of me already?" clicked Adam.

"Well, er, Mars is a planet of human beings. A tin man would be rather out

of place here. Don't you think?"

"I understand," said Adam. "Earth would not accept me as a human. And neither will Mars. I am not wanted anywhere. Yet, had you said the word I would have captured that other pirate ship for you and the lifeboat Belangor escaped in." Somehow, even his mechanical voice sounded sad.

"No doubt," said Usulor briskly. "But we can get on quite well as we are. I'll arrange a farewell ceremony."

"I must go back," said Adam, sadly. "Back to Eve Link, the only person who understands me. My back is beginning to ache. That screw in my liver has worked loose again. Only she can take me apart with real loving care and put it right again."

"Exactly, Adam," I said. "You have a screw loose in your liver. I heard once of a robot who had a screw loose in his head. Suppose you ever got a screw loose in your head. Think what might happen. That is why nobody can ever really trust you."

"I suppose not," said Adam. And wiped two large drops of oil from his eye-lenses with a piece of rag.

So, very soon after, Adam Link cleaned up his paint, checked up his wires and joints, set his little reaction motor going again and rose up through the thin air of the upper level caverns of Mars out through the great hole out into space, back to Earth.

And, well, let me see. Is there anything else I have to tell you? Oh, yes, that new vitamin. The doctors say it does an awful lot of good if you take to it slowly. Usulor and the others took to it too suddenly. Didn't give their insides a chance.

Well, I am not going to test it. Their say-so is good enough for me. Do you want any?

"I TALKED WITH GOD"

(Yes, I Did *** Actually and Literally)

Dr. Frank B. Robinson

and as a result of talking with God, there was disclosed to me what is the most remarkable spiritual discovery of the ages. I discovered that in every man and woman there lives the most dynamic spiritual Power this world can ever know. So dynamic, and so fraught with tremendous possibilities is this Power, that its existence in you will amaze you with what It can do for you right here on earth.

For, being the Power of Almighty God, it possesses all the wisdom, all the ingenuity, all the intelligence there is in the universe. It is only limited by your ability to recognize and use it. You are living in complete ignorance of the staggering fact that when the Almighty created the human race, He ordained it so that we all can draw fully upon, and use, the Power of God himself. This is the greatest spiritual discovery of all time.

Try and imagine what such limitless Power can do in your life. Think what your life would be like now, had you discovered this scintillating Power of God twenty or thirty years ago. Could there be any material or spiritual lack in your life now? Of course there couldn't. You may have often suspected that such a Power is available to you, but you never suspected that it already exists in you, instantly available, and ready to spring into action the moment you need it. Well, this is the truth. This is our new discovery of how the Spirit of God operates in life. God knew what He was doing when He placed such a Power in you. Your duty is to discover the existence of this Power and use It.

The whole story cannot be told here. But you send us a postcard with your name and address on it, and free information will be sent you by return mail. Send the post-card to "Psychiana" Inc., Dept. 126, Moscow, Idaho. May we suggest that you do not delay? If such a Power is available to you, you want it. So mail the card for free information now. The address again is "Psychiana" Inc., Dept. 126, Moscow, Idaho. (Copyright 1943 "Psychiana" Inc.)

N.B. Collier's Weekly, Time, Newsweek, American Mercury, Pic, Magazine Digest and scores of other periodicals have given free publicity to this Movement. This new discovery of the Power of God is a very dynamic thing, as you will probably discover, so write now.

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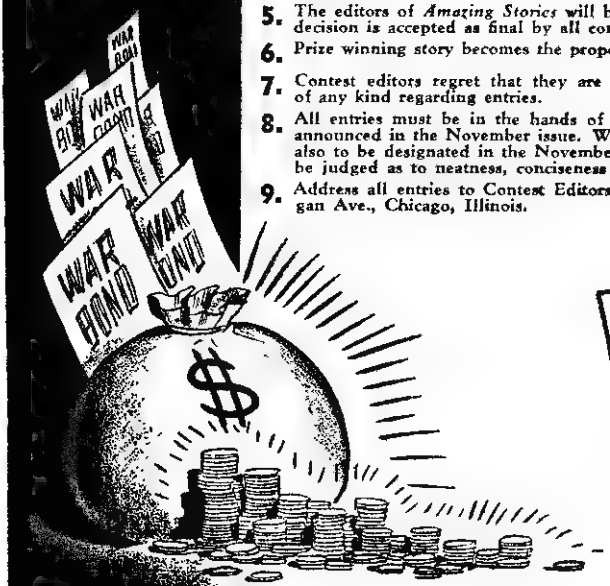
We will publish an illustration in the November issue. What this illustration will depict, we don't profess to know. That will be up to you! Using the illustration as a springboard, write a short story of approximately 1000 words. The illustration will be an integral part of the story; a scene from it; a part of the plot. Usually the artist illustrates the story:— In this instance we reverse the procedure. All you do is write an amazing story around the picture!

The Illustration and Complete Contest Details Will Appear in the November Issue. Watch for It.

RULES OF CONTEST

1. Contest open to all except employees of *Amazing Stories*, the Ziff-Davis Publishing Co., and their families.
2. Write your story on one side of the paper only.
3. Story should be approximately 1,000 words in length.
4. No entry will be returned. Published stories will be paid for at our regular rates.
5. The editors of *Amazing Stories* will be the judges in this contest. Their decision is accepted as final by all contestants.
6. Prize winning story becomes the property of *Amazing Stories*.
7. Contest editors regret that they are unable to entertain correspondence of any kind regarding entries.
8. All entries must be in the hands of the contest editors at a date to be announced in the November issue. Winner will be announced in an issue also to be designated in the November issue. In case of ties, stories will be judged as to neatness, conciseness and clarity of presentation.
9. Address all entries to Contest Editors, *Amazing Stories*, 540 No. Michigan Ave., Chicago, Illinois.



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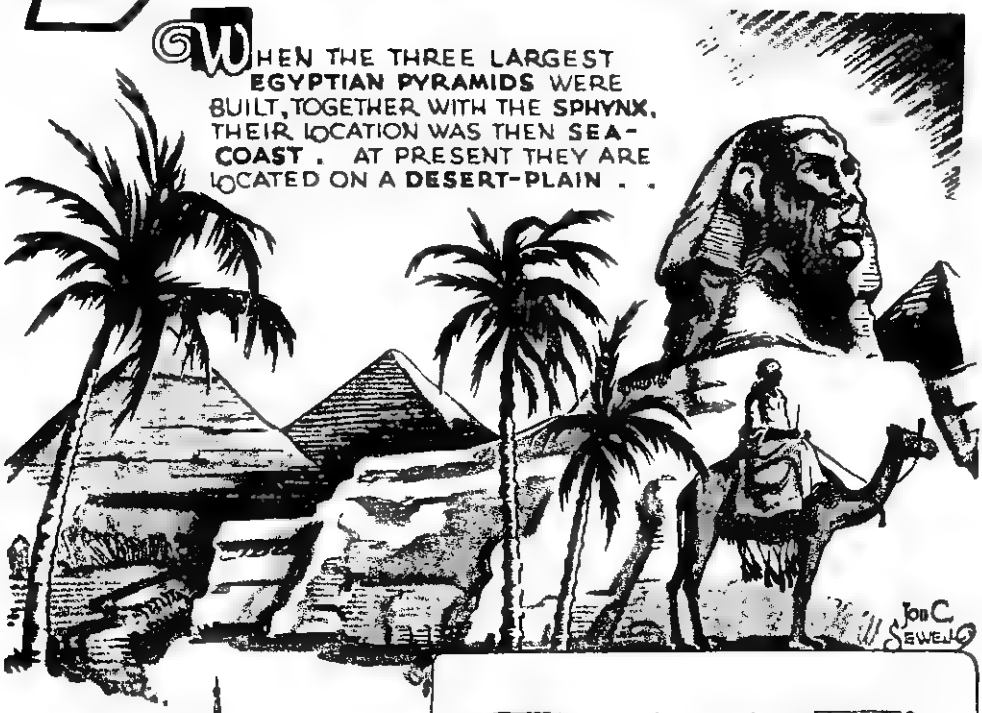
Scientific


WHEN THE THREE LARGEST EGYPTIAN PYRAMIDS WERE BUILT, TOGETHER WITH THE SPHYNX, THEIR LOCATION WAS THEN SEA-COAST. AT PRESENT THEY ARE LOCATED ON A DESERT-PLAIN . .
JOHN C. SEWELL

THE PAGODA OF CHINA, INDO-CHINA AND INDIA IS A PYRAMID-TYPE OF STRUCTURE.

THE BEAUTIFUL PYRAMID OF THE "SACRED CITY" LOCATED AT CHOLULU, MEXICO ONCE COVERED 45 ACRES. AT PRESENT IT IS IN A STATE OF RUIN, HAVING BEEN DEMOLISHED BY CONQUEST.

Mysteries

MYSTERY OF THE MEGALITHS

By L. TAYLOR HANSEN

They were the stone-builders of earth. Who were they? Where did they come from? Where did they learn the art that was theirs?

ONE of the greatest mysteries confronting science today is the mystery of the megalithic or great-stone builders of earth. It is possible to say when dealing with the Kitchen-Midden peoples, for example, that various types of people, finding themselves under similar conditions in various countries, sought the same kinds of foods, and therefore, just happened to build the same kinds of houses, make similar pottery, domesticate the dog, etc. However, with the megalithic builders of earth it is not so easy to dismiss similarities for two reasons. One is that the list is growing with each passing year and each new investigator. The second reason is Dr. Elliot Smith.

The possibility that all of the megalithic cities of earth might be but colonies of one world-encircling colossus is undoubtedly a romantic idea, and science becomes ultra conservative when confronted with such a possibility.

However, Dr. Elliot Smith, an eminent authority who was not to be frightened by seeming fantastic, began by putting the case into not only one but several volumes. Therefore the bespectacled clan is being forced to consider his conclusions. Of course, he has sugar-coated those conclusions by giving the motherland honors to the very solidly historical and undeniably ancient sea-power of Egypt. Nevertheless he has opened the case for argument, which is, scientifically speaking, a brave step.

As Dr. Elliot Smith pointed out in his "Migrations of Early Culture," there must be a limit to coincidence. In other words, there is a point at which the law of probability conflicts with the number of possible accidents. After this point has been reached in the comparison of two cultures, we are forced to accept some kind of inter-exchange, or ancient connection.

Now as we study the earliest civilizations, we are at once amazed by the similarity of dress, religion or religious rituals and customs. For example, when we discover that all the peoples who are living in various continents at the dawn of that land's civilization, upon the ancient sea-coasts or inland water ways, just happened to terrace their hillsides for hundreds of square miles; control their water-supply by means of irrigation canals and immense underground storage systems; build pyramids whose four sides face the cardinal points; hold ceremonial dances to the sun; wear clothes of cotton cloth which for the men consists of a short skirt fastened by a long belt whose fringed ends hang in front, while those of the women are draped in such a fashion that one shoulder is left bare, while a part of the end of the robe is worn over the hair; build walls of many-

tonned rocks whose edges are perfectly fitted with watch-like precision without the aid of mortar; use certain square or zig-zag designs upon a certain type of pottery (black on white is favorite color theme), and symbolize the sun by a red pyramid and water by a serpent, we may not be going beyond the law of probability.

However, when with further study, we also discover that they considered that black or red dogs had something to do with a safe journey across a river of death; artificially flattened the forehead of their infants to give the profile the appearance of being a continuation of the nose-line; fastened tigers to the gates of their cities; had a sacred fire attended by virgins whose infringement of their oath of chastity was punished by walling them up alive; held black to be the correct color, a tall hat and certain outer garments to be the correct ceremonial clothes to be worn by their priesthood; stored their food in round towers; built tombs of a similar design; mummified their dead with a certain distinct ritualistic procedure; had an especial respect for the snake or lizard, the cat, the dog and later the large bird, and even considered the amputation of certain finger-joints to be an act of piety—well, this is going beyond coincidence.

Nor has Dr. Elliot Smith in any way exhausted the list. He has, on the contrary, barely scratched the surface. The field of religious feast days with accompanying rituals (such as the spring festival of Incas and Ancient Greeks, probably inherited by both), of dances, and of games has yet to be explored. Details of masonry are in need of better study, such as the use of the closed arch, use of rows of sphinxes, the comparison of the round towers of Utah, New England, Ireland, Rhodesia, etc. Ceremonial costumes and types of sacrifice ritual should be compared. Weapons and types of headdresses is a fertile field of future research. Comparison of the ceremony of Christian baptismal and the far more elaborate and more ancient Indian ceremony with its ensuing kinship terms for the godfather and godmother are particularly interesting in the depths of the Brazilian Jungle where the missionaries have not as yet been able to penetrate.

IS DR. ELLIOT SMITH correct in his assumption that Egypt was the Ancient Motherland? It is true that Egypt has the greatest extent of known history, and she certainly was one of the world's most powerful early sea-peoples. Therefore, let us examine the honest claim of Egypt.

When we think of Megalithic Culture, we visualize their most typical and most arresting architectural monument —the pyramid. Of this architectural form Europe offers no examples unless we accept that hill which Massingham insists is an English Pyramid.* Indeed, when we view his illustrations, we cannot but admit that he has reason to suspect its square shape and perfect orientation, for the sides of the supposed "hill," as is usual with the very ancient pyramids, face with the best engineering exactness, the cardinal points. Furthermore, he has noted that the country thereabout is terraced, or rather, *was* terraced some four to ten thousand years ago.

There are perhaps two good reasons why the coast of Europe, though still dominated by a long-headed skull element in the mixed populations, lack these monuments which the ancient sea-power left behind, and by the means of which, like the footprints of an extinct dinosaur, we may still trail the colossus across the sea-coasts of a by-gone age.

* *Downland Man.—Author*

In the first place, Europe at the time of the old megalithic builders was a land of fierce mountain tribes and of terrific arctic winters, both of which would tend to discourage the inroads of civilization. And finally, the fertile and desirable lands where the ancient "People of the Sea" would naturally locate their great ports, such as Ys, are now far out on the continental shelf, under the Atlantic Ocean.

That much of this shelf was habitable until almost historical times, is attested to by not only the discovery of bones of Neolithic (New Stone Age style of flint instrument shaping) and of animal and human bones in the Submerged Forest Area, but also of flints and pottery.

Clement Reid in his study of this forest finds the trees and plants of modern character and of the type which favor a pleasant sea climate. J. Sinel has traced the Submerged Forest to the depth of one hundred and forty feet without finding any trace of an old seashore. Dr. A. Keith is of the opinion that the very latest possible date which we could assign to this land is about the start of the dynastic period of Egypt, but is probably much earlier.

For this reason, Egypt can boast of a greater extent of ancient land surface than Europe. Yet in spite of this tremendous advantage which Egypt holds, she cannot be said to be proportionately richer in pyramids. With the exception of the "mastabas" or small tomb-like structures, the number of pyramids in Egypt is not as great as motherland of the culture.

Nor does the location of the Great Egyptian monuments argue in favor of Egypt as the center. At the time when these three largest pyramids were constructed, together with the Sphynx, this portion of the present desert-plain was the then sea-coast. Does a nation as large as Egypt build her monuments along the shore?

With all due respect to Dr. Elliot Smith, if he had approached this problem of Ancient Egyptian history through the viewpoint of totemism, he would have realized that the conflict which was taking place in that land between the Great-Bird and the Snake at the dawn of history, was not a small inter-tribal strife but the echoes of a mighty world conflict, between two mighty powers. Furthermore, he would have realized that the pyramids having been built in Snake territory—the seacoast as usual—they are thus proved to be culture elements of the great Serpent Totem. Thus the pyramid becomes connected with the "Peoples of the Sea," for there is no dawn of sea-power in Egypt. The very earliest pottery in pre-dynastic graves yields pictures of great ocean-going ships.

THERE are two reasons why we know that the astronomical knowledge of Egypt was due to the civilization of the Delta, or the Serpent Totem. One was the Great Pyramid, and the other, the fact that the Egyptian Calendar was checked against Sothis (Sirius). In other words, when the star and the sun arose simultaneously, this began an astronomical era. This happened once every 1,460 years, or in 1321 B.C., 2781 B.C., and 4241 B.C. In such a year was the calendar inaugurated. With this data, French astronomers have checked back upon Egyptian history and find that in the year 4241 B.C. (the earliest positive date) the latitude for this computation was Memphis. Therefore, the honors for the inauguration for the calendar must go to the Delta, and the Serpent Totem.

Now with this positive evidence of great astronomical knowledge on the part of the Serpent sages, a reversal of

the present pyramid theory seems to be necessary. Instead of originating as tombs and culminating in a monument for checking time, as some learned men profess to believe, the opposite is probably the case. The pyramid was undoubtedly once used as a great siderial clock, which after unguessed lapses of time, and after much of the early knowledge had been lost, degenerated into a tomb.

In favor of this theory, it must be noted that in spite of the fact that it was later used, and possibly may have been built for a tomb, the Great Pyramid is the storehouse of a vast astronomical (not astrological) knowledge. Perhaps the architect, being one of the last of the great sages, and fearing that the tremendous libraries of his motherland might be lost as the result of recurring war (as has occurred), took this means of walling that knowledge up in a monument of masonry. Perhaps the idea did not originate with him. Perhaps it had been so done in some remote motherland, and he merely followed an old pattern, the knowledge of which passed away with his human brains.

At any rate, a further comparison of pyramid-culture must reveal some curious facts. 1) That the most ancient monuments, especially in America, are often the most perfectly oriented to the cardinal points. 2) There are pyramids in Egypt which greatly resemble the American "step" type, while research on some of the Egyptian models suggest the early presence of a temple on top as some of the American types. 3) In the Temple of the Sun at Abu Gurab, which is credited to the Pharaoh Ne-user-ra of the 5th Dynasty, there is to the south of the temple with its truncated pyramid etc., a "Boat of the Sun" which was originally about one hundred feet long and constructed of wood and brick. (The brick work is still quite recognizable.) This should be studied in connection with the "Boat of the Sun" always connected with sun-worship in the ancient Americas from the Incas to the Cherokees. 4) The Chinese Pagoda should be recognized as a pyramid-type of structure which extends through Angkor in Indo-China from India in an ever-increasing crescendo of degenerating detail.

IN THE matter of pyramid construction, the Americas have a greater claim to be considered the cult-center than Egypt. Not only are they more varied in type and in use, but the area which they cover exists from Chan-Chan in South America to the Cree and the Chippewa graveyards in Canada. From the ancient mounds of Ohio to the present Pueblo type of architecture, we see endless variations of the pyramid. Even the three-length bangs of the Hopi men is but an inverted pyramid.

As for the great ancient monuments of Mexico they have suffered more severely at the hands of fanatical Christians than the Egyptian models suffered at the hands of fanatical Arabs. When the white man was unable to demolish them, he covered the site with his churches. At the present time the conqueror has ceased to wreck these relics of antiquity but he has not as yet reached the stage of seriously studying them. When he does, he will find some surprises awaiting him.

For example, in Antequera, Mexico, are two pyramids which are penetrated by carefully constructed galleries, one of which is a right-angle penetration. At Xochicalco, Mexico, is a pyramid with galleries and inner chambers which is to be noted for its sixty-yard gallery, the inner chamber of which is covered by a dome or cupola faced with

squared stones laid in a particularly fine cement. From the top of this cupola a tube, or circular aperture ascends, which is about nine inches in diameter and which was undoubtedly intended for star-observation. It would be interesting to see what the result would be if the slightly larger Cheops Inch were applied to this aperture. (The sacred numbers in the Americas are four, eight, thirteen and twenty.)

At Papantla in the state of Vera Cruz, Mexico, there is an ancient pyramid which is covered with square niches that are symmetrically distributed. In the first story there are twenty-four to a side, there are twelve on the eastern stairs and three hundred and sixty-five altogether, with one set slightly apart. The number is sufficiently significant.

It is to be infinitely regretted that the magnificent structure at Cholula, Mexico, has been so badly demolished. At one time this pyramid of the "sacred city" covered forty-five acres!

Nor should the pyramids of Teotihuacan, Mexico, be overlooked, the largest of which covers eleven acres, if only because of the nearness of the name of that of the great ruins of Teohuanaco, Peru, which in the Quichua (Incan) tongue means "Seats of the Mighty Ancients."

As for the megalithic practice of terracing the land, Peru is without doubt, the most terraced land upon earth, in spite of the vast amount of terracing of all the lands and the islands of the Mediterranean basin. Nor is this evidence of the ancient custom confined to South America. The entire drainage system of the Rio Grande was once terraced, while Arizona and other western states show extensive terracing. In fact, the case in Arizona brings certain geological questions in its train. Today the streams from which these drainage canals ran, have long since gone dry, while the extent of the ancient agricultural terraces argues a far greater rainfall than the land has at the present time.

Below Arizona, the terracing continues into the Mexican Chihuahua country where it reaches Peruvian intensity at places. Though today this is a merciless stretch of sun and scorched earth, yet in western Chihuahua there are hundreds of square miles of these terraces in the Carretas and the Yaqui Valleys.

One thousand miles south is the same terrace effect credited to the Toltecs and reused by the Aztecs. And still further south the terracing continues into the jungles. What the explorers have been able to see of the Maya country, through Guatemala and the unknown Tupi country of Colombia and Venezuela are the ancient terraces now strangled under the tentacles of the jungle.

EVEN the jewelry of the megaliths is strangely similar. Segmented beads strangely like Indian "wampum" are to be found in many of the most ancient tombs in England, Spain, Italy, Egypt, etc. Scarabs found in England have been declared by Prof. Sayce (in Journal of Egyptian Archaeology) to be of local manufacture done in the best Egyptian style. These curious little imitations of a beetle are to be found all through the Mediterranean and up the Atlantic coast. Until very recently they have been thought to have been Egyptian in origin, but now they have been found in Mexico in the antiquities being dug out from under the lava bed at Copilco where a cemetery and the corner of a pyramid have been uncovered. (The Mexicans are tunnelling under the lava and lighting their way by electricity, thus giving this city of the dead a curiously modern setting.) The lava

sheet which is credited to Mt. Ajusco is considered to be not later than the second millennium B.C. It is to be noted that this is the date now given to the megalithic remains in England.

One other surprise concerning the Mexican scarab awaits us, besides its very existence, and that is that it is carved from jadeite instead of the various gems or blue-lacquered paste of the Egyptian type. Now, of the many gems which the megaliths might have and possibly did use, only two are supremely sacred. One was turquoise and the other was jadeite.

Since the mines of this latter particularly admired gem have never been found, it has been presumed by some fanciful writers that they might have existed upon some sunken motherland. Be that as it may, we do know that jadeite, extensively used by all the megalithic peoples, is entirely *unknown in Egypt.*

Furthermore, a legend of the Sia of New Mexico shows that the scarab owes its origin as the part of a cultural-pomplex to a power far more extensive, more learned in astronomy and older than the kingdom on the Nile. The tiny scarab was given the stars to hold, but though he tried very hard, say the ancient Sia, they all broke out of the bag and flew away. He was only able to save two constellations—the Pleaides (always connected with the Atlantic) and that which we call the Great Bear, but which the Indians call "The Mighty Serpent"!

Who were these people if Egypt cannot be considered the motherland? Have any of them come down to our century? Science is no more prepared to answer this question than it is to designate the culture-center. Yet to suppose it *was* a world-encircling collosus, fantastic as that might seem to be, is nevertheless more logical than to admit that there is no such thing as the Law of Averages.

REFERENCES

All of the books of G. Elliott Smith (who is both an archæologist and an anthropologist).

Migrations of Early Culture, Ancient Egyptians and the Origin of Civilization, Evolution of Man, Etc.

R. N. Hall (1) Prehistoric Rhodesia and (2) Ancient Ruins of Rhodesia.

A. H. L. Heeren—Historical Researches into the Politics, Intercourse and Trade of the Principal Nations of Antiquity.

Courtney, R. A.—The Hill and the Circle.

J. Abercrombie—Bronze Age Pottery.

Z. Nuttall—Old and New World Civilization.

J. Herbert Spinden—Ancient Civilizations of Mexico.

J. Hewett—Ancient Life in the American Southwest.

M. C. Stevenson—"The Sia" in 11th Ann. Report Bureau Amer. Ethnology.

NOTE—*Edgar L. Hewett who does much So. West research is the director of the School of American Research of the Archæological Inst. of America, and while not an anthropologist, has a splendid understanding of the Indian spirit and culture.*

★ CAPSULES IN FIRST AID ★

THE use of capsules has invaded nearly every sphere of human activity. The latest development and extension of these little containers, one could almost guess, is in the armed forces.

Capsules containing enough iodine or mercurochrome for one application are part of servicemen's first-aid equipment. The ingredients are enclosed in a glass bulb, sealed and protected by a transparent Lumarith plastic tube (made from soda straws!), sealed at one end by tightly compressed absorbent cotton.

To treat a wound, the following procedure is effected:

The cotton becomes saturated with the drug when the glass bulb is broken by slightly squeezing the flexible tube between the thumb and forefinger.

Each capsule is packed, cotton-end first, in a fiber sleeve, and the contents are kept fresh, and potent as they are not exposed to the deteriorating effects of air until the glass is broken. The capsules eliminate the dangers, too, of contamination, spilling, and broken glass which are present with ordinary bottles and applications.

The single-treatment capsule of iodine is used only once and then discarded.

DISCUSSIONS

AMAZING STORIES will publish in each issue a selection of letters from readers. Everybody is welcome to contribute. Bouquets and brickbats will have an equal chance. Inter-reader correspondence and controversy will be encouraged through this department. Get in with the gang and have your say.

BUCK ROGERS' CREATOR

Sirs:

Recently I read a book, "Comics And Their Creators", which stated facts which disagree entirely with those you published in your biography of Phil Nowlan. They claim that the idea for the strip was thought up by John T. Oile, head of the newspaper syndicate which handles it. They also claim that he always wrote, and still writes, "Buck Rogers". Worst of all, in the whole article, no mention was made of Phil Nowlan. Could you straighten me out on this matter?

DONALD JALBERT,
66 Juniper Street,
Hinchendon, Mass.

"Armageddon—2419 A.D." was published in AMAZING STORIES *in August, 1928, and "The Airlords of Han", its sequel, was published in March, 1929. Both of these stories feature the first appearance anywhere of the now famous Buck Rogers and Wilma Deering. It is probably correct that Oile thought up the idea of using him in a comic strip, and that he writes the strip. It is an injustice to Nowlan (now deceased) to claim credit for the creation of the character.*—ED.

ESCAPE VELOCITY

Sirs:

Frankly, I think all this talk and frantic search for a fuel to achieve escape velocity is a lot of hog-wash and wasted effort.

Does the driver of a car race up to the bottom of a hill with a terrific burst of speed, then shut off his motor and coast to the top?

A space flight to the moon might be compared to driving a car up a hill. Any ship that could maintain a climbing rate, no matter how slow, would eventually reach the top of the hill (in this case the peak of gravity) and then coast to the moon.

Why all this "escape velocity"?

DAN WILHITE,
3212 Maryland Ave.
Little Rock, Ark.

Perfectly true, my dear Mr. Wilhite. Perfectly true. So far as we know, your editors have never said an initial velocity of 7 miles per second is necessary to flying to the moon. That standard is fixed as the initial velocity, if that were the only velocity we had. Okay, let's bury the author of that law with his law. From now on, it's just a motor powerful enough to keep climbing!—ED.

A QUESTION ABOUT BURROUGHS

Sirs:

My friend, who also reads your magazines, says that "The Princess Of Mars" and "Warlord Of Mars" by Edgar Rice Burroughs was never published in AMAZING STORIES. Would you tell me if they were or were not?

HERMAN STEIN,
3303 W. Grenshaw St.,
Chicago, Illinois.

No, these stories never appeared in our magazine. We run all of Burroughs "other world" stuff now, however, which is nil at present, because the old master is a war correspondent in the Pacific. In answer to your unpublished question, Eando Binder is not in the army, but he isn't writing Adam Link either, because he's busy doing comics, full time, believe it or not!—ED.

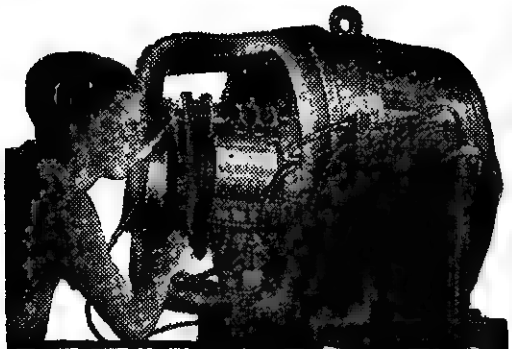
WE PLEASE A SOLDIER

Sirs:

Somehow a copy of AMAZING STORIES has found its way out into this desert, and it has so filled me with nostalgia that I can't rest without having sent a word of acknowledgment for the most enjoyable afternoon in a long time. Reading science fiction for the first time in longer than I care to mention, has reminded me of a lot of things. For instance, that I became a "fan" about sixteen years ago (and that makes one feel pretty old). And, as proved by Robert Bloch and a couple of others, that you have pretty good writers. Or again, from the painting of one "pneumatic" girl on the cover and a letter from another most articulate one of fifteen in Discussions, that America must have been, or is going to be, a mighty nice place.

I believe that imaginative literature is the most important sort of popular fiction, not only as prophecy or as an intellectual stimulant, but as an influence on the thought and planning of people with minds fresh enough to see through the "veneer" of present apparent reality. Reading science fiction is by no means an idle or a fruitless pastime.

CLAIRE BECK,
Flight Officer, 44th T. C. Sqdn.,
A. P. O. No. 681,
New York, N. Y.



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CITY STATE

We wonder what you mean by "pneumatic", Mr. Beck? Webster says it is "pertaining to or containing air or gas, especially compressed air, as, a pneumatic tire." Do you mean the girl on the cover is full of compressed air? Or maybe you mean she's "high-compression"? We think she's T.N.T. ourselves! Anyway, we're glad we stepped in to give you a lift!—ED.

ANSWER TO "EX-FAN"

Sirs:

In Discussions for June, under the title "Are Letters Unbiased?" I found a letter signed "a disgruntled ex-fan". I didn't like this letter, and was especially discouraged to find that RAP greatly agreed with the writer. The writer, safe in his cloak of nonentity, makes some unpleasant statements about fandom.

Fandom has its radicals and communists and emotionally unstable, perhaps more so than conventional organizations. The impression the general public gets from fandom is invariably bad. *Time* magazine *did* have a write-up of the fans, and more recently, the *New Yorker* ran a piece about us. But usually, the fans contacted by these periodicals are not representative of the whole bunch at all, and bent on having fun.

I daresay that "ex-fan" has a perverted view of fandom. I feel sure that he is not an inner circle fan, and they have their own jokes and subtleties that may not have been understood by him, and he may have been defied by some of the fans. He sounds narrow-minded anyway.

Yes, respected editor, fandom *is* a minority. After all, what are a hundred and fifty fans to a half-million readers? A fan pays 25c for AMAZING STORIES, but a reader pays the same, so obviously an attempt must be made to please the majority, or close shop.

It doesn't greatly matter to me what "ex-fan" thinks about fandom; he is just one person. But you, Ed., influence the *readers*, and I would surely hate for *them* to get a bad impression of the fans

According to many of the fans, the Ziff-Davis science fiction publications concentrate on action, with a definite appeal to juveniles, and delight in presenting hack-work for the passing entertainment value the hordes of readers derive. The fans want more adult fiction, more good writing, and intellectual appeal, and less blood and thunder. Many go so far as to pretend nausea whenever one of your publications is mentioned. This last certainly is not fair, but you will admit that the criticism is not founded on flippancy and prejudice.

I firmly believe that there should be a closer relationship between the science fiction magazines and the fans, and am willing to further any cause which aims at that idea. I *know* the fans are basically sound and very intelligent, and I profess the idea that they are far ahead of their time in thought and visionary powers. In any average group found anywhere in any town, the

trend is toward stupidity. The majority are stupid. In a fan gathering, the majority are intelligent, and stupidity is conspicuous. People do not organize to think. *Fans* think! Normalcy is not desirable because of the trend downward.

About the July issue, I didn't like "Carbon-Copy Killer", which is a detective story thinly clad in scientific trimmings. "The New Adam" is the best story I've ever read in AMAZING. "Bill Caldron Goes To The Future" afforded me more pure enjoyment than almost any other piece of fiction I've ever read. Pray, may we have further adventures of this intrepid gentleman?

RAYMOND WASHINGTON,
117 Hamilton Street,
Live Oak, Fla.

Since your letter was six typewritten pages long, we had to do one of the things the fans dislike—cut it. But we have tried to retain the gist of your remarks. We think your letter speaks for itself However, we have a few remarks to add. First, pulp paper, our medium, is in itself, very unpermanent. Pulp magazines are not intended to present "enduring" literature. Only to entertain at the moment. We do not present "hackwork" but the best fiction obtainable from the best writers in the field. And in spite of our pulp paper, literally hundreds of our stories have attained that permanency you desire—in collections of the best short stories, in book form, in the movies, and in the memories of even our oldest readers. You admit the fans are not fair, so that seems to conclude that argument. Your placing of the "fans" in the only "thinking" capacity in any average group in any town, is a thoughtless statement we're sure you really don't mean. Also, we disagree that "normalcy" is not desired. We are fighting today to return this world to normalcy. Our part in that fight is entertainment to hold up morale. We publish over two million words a year. Not all of that can be "deathless" literature. If it were, the term "worthwhile literature" would become meaningless because of its very plentitude. What then would you consider "worthwhile"? Not all of us can be geniuses. If we were, we'd all be "average". Some scientists say that none of us really "think" in the pure sense of the word. After all, it's a hard job, and we must relax sometimes. AMAZING STORIES *believes its job is to provide that relaxation. Which, after all, is where we really disagree—and there's no answer to that!*—ED.

ONE MAN'S OPINION

Sirs:

The June and July issues of A S. were positively terrific! For instance, in June:—

1st. Place was shared by "Earth Stealers" and the last half of "Priestess Of The Floating Skull," I'm sorry I missed the first of this serial, and as to Wilcox, where does he get his weird plots?

2nd. "Laboratory of the Mighty Mites." This is the first story I have seen by Sonbergh. Be sure to get more by him.

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3rd. "Aid to the Enemy." Short and sweet. That climax was entirely unexpected.

4th. "Me, the People." A catchy title, a new plot, and the fact that the story was told by two people at once, made this story very enjoyable reading.

5th place was tied between "Pacifists of Hell's Island" and "Flight of the Sirius."

6th. "Conspirators of Phobos." I never could get used to Hargreaves yarns. They leave me cold.

Now for the July issue:—

1st. "The Great Brain Panic." Another of Wilcox's weirdly original plots. How does he do it?

2nd. A tie between "Jimmy Dolan's Radio Ray" and "The Man Who Lost His Face." Both unusually excellent.

3rd. "Collision in Space" (for once a Pragnell story that I like!) and "Astral Assassin."

4th. I was expecting something better than in "Carbon-Copy Killer" judging from the build-up in the Observatory. It fell short. However, I like this kind of a story. Let's have more.

5th. "Juggernaut Jones, Commando."

6th. "Silver Raiders of Sirius." Pretty weak. Pretty weak!

EUGENE NELSON,
Rt. 5, Box 1184,
Modesto, Calif.

Thanks for your listing. Although we try not to publish lists like this too often, we appreciate the opinions of our readers, since it helps us to select future stories.—ED.

SOME "WHYS" ABOUT SCIENCE FICTION

Sirs:

I like the type of story represented by "Carbon-Copy Killer" for the following reasons:

Even in my imagination things must be rationalized at least by practical facts or ideas. So I have been annoyed with the space travel stories, because most of them have ships equipped with tools and instruments that do not follow natural phenomena. Why do authors continue to pattern their space ships after the ridiculous illustrations in the older magazines?

Furthermore, there is too much written about Martians, Mercurians, Venusians, and other peoples of heavenly bodies (the planets, not the people) and there are too many stories full of interplanetary slanguage and little else.

Another point is that space travel would be limited to the lifetime of one person, so those places so many light years away would be unavailable (unless we got clever like the Chinese).

There is an interesting theory that anything that achieves the speed of light becomes light, or electricity, which would be a bit shocking to one used to a solid body and a solid chair to park it on.

Now there is a great deal more information on atmosphere and surface temperatures of the plan-

ets in our system that brings up doubts of their being populated by any kind of beings. I read that the surface temperature of Mercury would melt lead. A guy wouldn't need winter underwear there Venus has an atmosphere of methane. That wouldn't smell so nice.

Which brings us to an invasion from space. Who should live so long? So to sum up space travel, why?

On the other hand, there is the possibility of hauling minerals from the moon and Mars. And if those canals on Mars really are canals dug by an ancient people, the archeologists would throw fits digging fossils there. There would be monuments, tombs, and such things, and perhaps there isn't enough air to make sand storms so they could be in perfect shape. And who buried the last guy? Maybe he could be found.

Maybe I should write a book about it.

What I am getting at is a very strong dislike for space slanguage, descriptions of impracticable machines, space wars, weirdly composed peoples, and trips to someplace that can't be reached in a lifetime of light years.

I suggest we leave out stories of the corny 28th, 46, 93rd centuries with "historical" references. Of people with three eyes, red, green and amber signifying stop, go, and caution. Let's leave out stories in which the author drowns us with descriptions of instruments that depend on a new system of molecular structure, and nonexistent minerals. Suppose we dispense with galactical battles with peoples of planets so many light years away that they had to start now to get there then.

My interest in "Carbon-Copy Killer" was in the fine manner in which it was written, and its locale. I like stories close enough to home that the author might have had a chance to have seen it.

A good writer can make a story with most near anything. Let's have more well written stories and less space slanguage and that ilk.

WALTER TERRILL,
No address.

Sometimes your editor finds a writer calling on him asking for a plot. (In fact, we give out an average of two plots a week to authors who can't seem to think for themselves, or just haven't got the energy to!) Then we try to explain to them just about what Mr. Terrill (God bless him!) has so ably expressed in this letter. But they don't seem to get it, and as a result, we have too few stories with the polish of such men as the author of "Carbon-Copy Killer"; William Brengle; David V. Reed; Don Wilcox; Frank Patton; G. H. Irwin; and very modestly, your own editor, whom you remember under the name of A. R. Steber.

Yes, Terrill, we agree, that much better stories can be written by staying a little closer to home and writing about things that are plausible. An air of almost incredible fantasy can be given to anything by a skillful writer.—ED.

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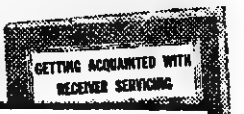

PARTIAL LIST OF SUBJECTS

How superheterodyne receivers work
How to remove tubes, tube shields
Three reasons why Radio tubes fail
Electrodynamic loudspeaker
Output transformer repair
Gang tuning condenser
I.F. transformers What they do, repair hints
How to locate defective soldered joints
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SHIP OF JUPITER

By MORRIS J. STEELE

The ocean-going vessel of Jupiter must sail in a sea of viscous, heavy oil, sticky and clogging. Ordinary propellers would fail.

(See Back Cover)

JUPITER'S mean diameter is 86,500 miles, which is very nearly eleven times that of Earth. It has a mass of 316 times that of Earth. However, its density is less than one fourth that of our world, but exactly equal to that of the sun. On Jupiter a surface gravity pull of 2 2/3 that of Earth exists, but it varies as much as twenty percent between equator and poles due to its rapid rotation. Some astronomers hold that it is almost entirely a liquid planet.

If this is so, then the planet is composed of huge oceans of a liquid which is almost an oil, or a thin gluey composition. Ordinary ships, like those of Earth, would be unable to move in its thick, syrupy ooze. Also, a ship of comparable size would be nearly three times as heavy. However, due to the density of the ocean, it would probably ride just as high, but would be forced to fight against an additional frictional drag.

Let's picture a ship of Jupiter. First, it would be as sleek and streamlined as possible to permit it to slide through the "water" with as much ease as possible. Deep draft ships would be impossible, since such ships would be immovably lodged in the viscosity of the liquid.

Rather, the bottoms of the ships would be more or less sled like, to permit them to slide over the surface. However, because this surface is so sticky, a propelling force which would "grip" sufficiently to move the ship would of necessity either "dig" deeply into the water, or "bite" into a comparably broader surface.

The only mechanism which could accomplish this wide "surface push" would be a continuous revolving screw almost as long as the ship itself. And because we cannot have a deep draft, this screw would be located on the side of the ship, at the surface, rather than underneath, at the center.

In turn, this would necessitate not one screw, but two; one on the other side, turning in an opposite direction, to provide maneuverability. Otherwise, the ship would proceed helplessly in a circle which might almost be tight enough to be called a spin on one spot.

Such screws would necessitate a motive force which could only be provided by tremendously powerful motors, which would mean tremendous weight. Since everything on Jupiter weighs nearly three times what it would on Earth, this immediately increases the mass of the ship.

Because of this fact, ships on Jupiter could not be built beyond a certain maximum size determined by the balance between power and mass. A small ship would be too small to carry any cargo, and a large ship would be impossible to move because of its very weight.

Thus, the ship is a medium-size ship which takes into its make-up a hair-line calculation of ratios and factors.

For the purpose of speculation, we should assume that Jupiter power plants are more efficient than on Earth, and put out more energy per pound than our own marine engines do. Thus, we can picture a Jupiterian ship of a size comparable to our own ocean-going light freighters.

Thus, we have a ship perhaps 250 feet long and weighing about 18,000 tons (compared to a 7,000 ton Earth freighter).

It would, in spite of its weight, carry a bulk of freight only one-third that of the Earth ship, and its speed would be not more than six knots per hour. Long hauls on Jupiter would take many months, and the sailor of this vast world must grow accustomed to long voyages and long periods of inactivity, since storms on his world would not result in the wave motion we experience here. In fact, most of the time, the ocean would be as calm and smooth as a mirror.

During a storm the ship would head into the wind, and ride it out, its sleek sides shedding the wind. However, if it got sideways to the wind, which because of the density on Jupiter would possess a terrific force, it would roll slowly like a barrel, entirely covered by a covering of viscous oily stuff many feet in thickness. In this event, the Jupiterian crew would smother to death for lack of air, if the storm lasted any time at all.

In such an advent, the motors controlling one screw of the ship would be shut off, and the other screw would then serve to bite into the sea on each roll, and restore it to its original direction into the wind.

Then, in order to right the ship, which has no real heavy side which would automatically right itself, a small propellor, at right angles to the screws, located at the narrow part of the stern, might turn the ship, inches at a time, until it rode properly on its sled-like bottom.

The Jupiterian ship is constructed entirely of metal, of the strongest kind available on the planet. It has to be able to "take it"!

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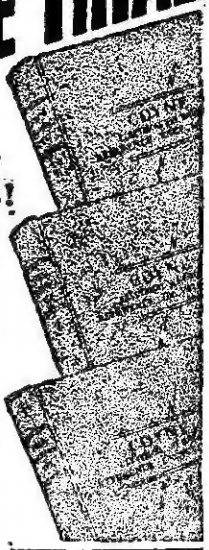

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THE United States has a new fighter plane in the field, which has proved highly satisfactory against the best that the enemy has been able to muster. It's the P-38 Lightning, built by Lockheed with twin Allison engines. Airmen are making no super claims for the Lightning, preferring to let the boxscores speak for themselves, but already its prowess has halted the allegation on both sides of the Atlantic that American fighter planes did not measure up to the models of other nations.

In New Guinea and in the Aleutians Lightnings have shown marked ability to blast Jap Zero's out of the sky, but it is in the air over North Africa that the Lightning's versatility is most in evidence. For here it meets the best Germany has to oppose it—the Messerschmitt 109-G and the Luftwaffe's highly rated Focke-Wulf 190. The former is extremely fast and maneuverable while the Focke Wulf 190 is an excellent high altitude fighter, but the American plane is shooting them both down at any level.

It took four years to develop the Lightning into the ship it is today. There were plenty of bugs which had to be eliminated one by one before pilots would look on it as anything but a plane that couldn't possibly deliver the goods. But today, this twin-fuselaged ship, designed as a defensive interceptor to protect cities from hostile bombing attacks, is proving valuable not only as a high altitude worker, but also as a low-level strafer against tanks, trains, and roads.

U. S. airmen claim the Lightning is faster than any enemy plane and praise its versatility. Its ability to climb quickly makes it an ideal strafer and its high altitude and long range enables it to escort bombers on long missions.

Soon other new U. S. fighter planes will be in the field to help the heavily-gunned Lightning chalk up more victories for the Allied cause. Mastery of the skies is in the offing.

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